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Cascadian cross border cooperation challenged: the case of the Shared Waters Alliance

Riley Jones
Western Washington University

Cascadian Cross Border Cooperation Challenged: the Case of the Shared Waters Alliance

By

Riley Jones

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Kathleen L. Kitto, Dean of the Graduate School

ADVISORY COMMITTEE

Chair, Dr. Patrick Buckley

Dr. David Rossiter

Dr. Donald Alper

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Riley Jones
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ABSTRACT

The process of globalization is resulting in a proliferation of political, economic, ecological, and cultural ties that extend across the borders of nation-states. Compounded with the fact that central governments are less interested or capable of addressing every cross border issue, subnational actors are more likely to engage in cross border diplomacy. The border region within Cascadia, a region at the western edge of the US-Canadian border, is not unique in this respect and has been experiencing a rise in subnational cross border interactions. However, cross border actors Cascadia are not fully empowered to engage institutionally or formally. Obstacles such as differing government structures, Canadian sovereignty concerns, and a US emphasis on border security inhibit formalized engagement by local border actors. As a result, ad hoc, cooperative measures are one of a few viable options for cross border stakeholders concerned with a localized but transboundary environmental problem. Cooperation can be induced by strong social capital, that is the existence of social linkages, shared norms of behavior, shared expectations, and shared beliefs and understandings.

The Shared Waters Alliance (SWA) is a transboundary working group in Cascadia. An informal and voluntary group, the SWA is limited in focus to environmental issues in the Boundary Bay Basin. Despite its informal nature the group has none-the-less operated continuously for over a decade. At a cursory glance, it would seem the SWA is a successful model of cooperative transboundary environmental governance within Cascadia. The work of this thesis seeks to establish if indeed the SWA longevity speaks to the construction of cross border social capital. In order to examine whether this is true, several separate lines of inquiry where pursued: how much social capital, along structural and cognitive dimensions has actually been established by the group, and what are the main challenges that exist or threaten to inhibit the group's success? A third line of inquiry sought to determine tangible suggestions that could help the SWA rise above or mitigate some of the obstacles it faces. The SWA was not necessarily chosen because it was assumed to be a model of perfection. Rather given the group's durability, it seems worthwhile to investigate it operates. While it may or may not be a model for other environmental managers to follow, determining the successes and failings of the SWA can still provide a road map for other transboundary efforts to follow, or avoid.

Conducting a case study of this group was done by pairing two differing yet complementary methods. Inductive, qualitative interviews were conducted with a small handful of SWA participants. The goal of these interviews was to draw out major themes in regards to the social atmosphere within the group, the challenges that were perceived to exist, and what actions each individual interviewee would like to see the SWA undertake in the future. The themes teased out of interview analysis were then used to create a survey that was administered to the group as a whole. The combination of two differing research methods sought to not only allow for the results from the first method to inform development of the second, but to also combine the richness and depth of qualitative inquiry with the statistical generalizations from quantitative surveys.

The findings revealed a complex social dynamic. The SWA has largely been successful at establishing and growing connections across the border and creating a friendly, trustworthy forum for communication and networking. However, it also appears that the SWA has not been able to expand beyond passive activities to make substantive efforts to improve environmental conditions, somewhat to the chagrin of stakeholders.

While the SWA faces a plethora of challenges, it does not appear that effects stemming from border security practices are among them. Largely, the biggest issues for the group come from external forces they can't easily change, such as lack of empowerment or lack of resources and funding.

Largely, there are few instances of differing perceptions between sub-groups of stakeholders. In general Canadians have the same opinions as Americans, Government as non-government, and local government as regional/federal government. However, several critical differing perceptions

exist between the opinions of those in government and non-government, and on occasion, between levels of government.

As a whole, the SWA is valued by involved stakeholders, although there is a wide enthusiasm at the suggestion of making changes. While the suggestions given were quite general, it appears that most stakeholders hope the group could become more goal-oriented and more organized and systematic. What stakeholders do not seem interested in doing is burdening themselves with more volunteer activities.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

BC-WA ECC: British Columbia -Washington Environmental Cooperation Council
CBC: Cross Border Cooperation
CBR: Cross Border Region
CSSP: Canadian Shellfish Sanitation Program
CFIA: Canadian Food Inspection Agency
DOF: Fisheries and Oceans Canada
DOH: Department of Health
EC: Environment Canada
EPA: Environmental Protection Agency
IJC: International Joint Commission
MOU: Memorandum of Understanding
NAFTA: North American Free Trade Agreement
NSSP: National Shellfish Sanitation Program
PNWER: Pacific Northwest Economic Region
PSP: Paralytic Shellfish Poisoning
SWA: Shared Waters Alliance

1.0 INTRODUCTION TO A CASE STUDY OF THE SHARED WATERS ALLIANCE

1.1 Project Description

The function and character of borders, and the types interactions between individuals and institutions across them, is undergoing a transformation. Specifically globalization, the process in which territories and institutions world-wide are becoming increasingly linked together along economic, political, and social dimensions (Newman and Kliot, 1999), is spurring what Swynedouw (1997) refers to as "rescaling". This process, occurring at and near borders, results is a process in which "regulatory codes, norms, and institutions are spatially shifted from one scale to another (p 156)." Central governments are less interested in or capable of addressing every issue along their border (whether it be cultural, political, environmental, or economic), and increasingly actors at the sub-state or local level (herefore referred to as "micro-level") have been reaching across borders to fill that void.

While rescaling is occurring at borders everywhere, differing geographic and political conditions makes a difference in determining the nature and extent of linkages being built across borders. At the US-Canada border, most cooperation and communication is informal, ad hoc, and singularly targeted at a specific issue (Blatter, 2004). Furthermore, the situation is not homogeneous across the entirety of this border. A subsection of this border, a region known as Cascadia, exemplifies a high level of interconnectedness in comparison to elsewhere along the same border (VanNijnatten, 2009).

Despite the volume of micro-level interactions between cross border stakeholders, there remain substantial challenges to formulating binding or official agreements or protocols. Norman and Bakker (2009) found that while it is true that the federal governments of the United States and Canada have become less involved in border issues than they previously were, subnational actors are not necessarily fully empowered to take formalized, government action in this void. Furthermore, following 9/11 the US government has been increasingly concerned about border security at the

expense of other cross border activities (Ackelson, 2009), creating what Konrad (2010) refers to as a thick and uncertain border   Finally, the governments of Canada and the United States are quite different, both at the national and state/provincial levels, inhibiting any formal or regulatory efforts at a micro level (Alper, 2004). One of the few remaining options for subnational cross border stakeholders is to undertake cooperative measures.

Given the specific conditions and unique obstacles found at the cross border region of Cascadia, I intensively examined one particular cross border group, the Shared Waters Alliance (SWA) in order to better understand the myriad of forces molding micro level cross border dynamics in this region. This group, while not a perfect model, has existed for over a decade, and is focused on an environmental issue that has a small spatial scope, making it a unique group to investigate. Through this case study, my goal was to gauge how a community of localized cross border stakeholders has formed, and whether or not this particular group has succeeded in maintaining channels of communication, has generated new environmental knowledge, developed mutually shared goals and environmental values, and finally, if a sense of trust has been instilled between involved stakeholders.

Most importantly, I hope to explore what SWA stakeholders find to be necessary for future success and expansion of their efforts. By investigating this group, its successes could potentially serve as prototype for other cross border stakeholders looking to address a shared environmental issue, while also illuminating pitfalls to be avoided.

1.2 Research Questions

My research interests led me to three specific questions that serve as a guide to better understand how the SWA functions as an organization, uncovers the particular political, social and geographical challenges they face, and finally, ascertain what vision the stakeholders have for the future of SWA.

- Has participation in the SWA contributed to building social capital between environmental stakeholders?
- What challenges, both internally and externally, have an impact on the ability of the SWA to influence policy or change environmental practices?
- What changes or future suggestions do SWA respondents feel would strengthen or improve the group in the future?

Qualitative and Quantitative methods were used to explore these questions. Qualitative, semi-structured interviews were conducted with a small sample of stakeholders involved with the SWA. Seven individuals were interviewed, three American and four Canadian. The intention of these interviews was to gain a sense of the stakeholders' perceptions of the internal dynamics of the groups, and the obstacles the SWA faces.

After analyzing the interviews and teasing out some major trends, the information gleaned from the interviews was used to develop a quantitative survey that asked a larger population of SWA stakeholders whether they agreed or disagreed with a number of statements and questions. Statistical analysis then compared the responses of several different pairings of sub-groups (Americans vs. Canadians, Government Sector vs. Non-government Sector, and Local Government vs. state, provincial, or federal Government).

The goal of the survey was to measure multiple different aspects of social capital, including cognitive and structural dimensions. Specifically, the survey probed the following four aspects:

- Growth and intensity of interaction, along with shared environmental understandings
- Consensus in regards to the central purpose of the group
- Mutual recognition of the main challenges the group faces
- Mutual agreement with suggestions for changes the group could make to further future successes.

Analysis revealed that there did seem to be healthy social capital within the group: the tone of the group was friendly and positive, there are generally shared environmental understandings and a sense of solidarity and mutual belonging to place, and consensus as to the group's mission, the obstacles it faces, and the future direction it could pursue.

However, despite evidence indicating the presence of social capital, this may not be enough. The obstacles that are considered most acute and problematic are institutional and bureaucratic challenges that are outside of stakeholder's' ability to change or alter.

Ultimately, while the group is highly regarded and valued, it is also clear that the group needs to change to deal with these obstacles. Suggestions that could potentially make the group more organized, more efficient, or more goal oriented garnered high amounts of enthusiasm.

1.3 Background

A brief background of the frameworks informing the questions and research methods will be explained here to acquaint the reader with the overall paradigm of this work, but these concepts will also be explained with more depth in the succeeding chapter.

1.3.1 Shared Waters Alliance. The SWA was formed in the late 1990s in response to

shellfish harvesting closures in Boundary Bay that that had been in place since the 1960s. Initially composed of a small collective of local stakeholders on either side of the border (Norman, 2007), it has expanded in size and membership and now has representatives from the both sides of the border that represent non-profit, private, and
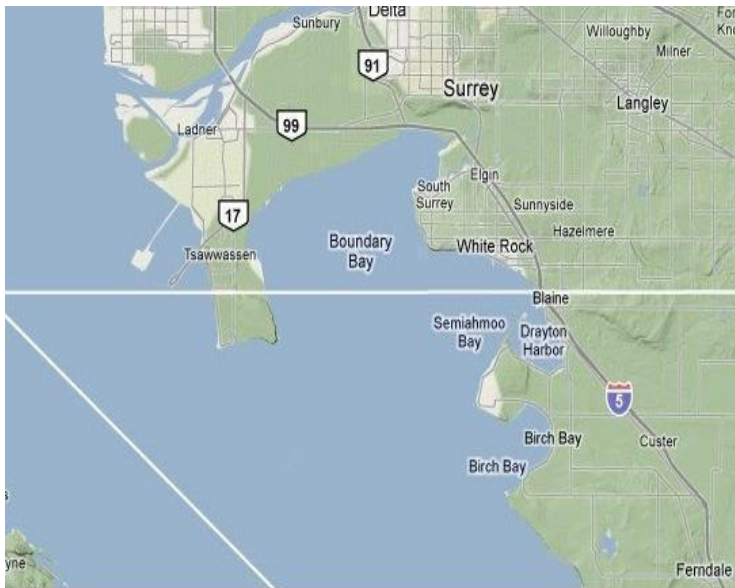
Figure 1.1. Map of Boundary Bay (Adapted From GoogleMaps)

public sector members. From within the public sector, all levels of government, including municipal, state and provincial, and federal levels of government are represented (Shared Waters Alliance, 2006). The initial goals of the SWA were to determine where the fecal coliform causing the

harvesting closures was originating from, and how the pollutants were circulating within the bay. Their goals have since expanded to include public education and pollution prevention or mitigation projects (Shared Waters Alliance, 2006).

1.3.2 Border Theory and Cross Border Cooperation. What borders are and what they mean is changing (Blatter, 2004; Brunet-Jailly, 2005; Perkmann and Sum, 2002; Scott, 1999). While the purpose, function, and form of borders have never been constant, within recent history, borders have been tasked with containing, defending, and legitimizing the extent of territory contained within nation-states. During the last several centuries, borders have primarily functioned as way to delimit the territory of sovereign nation states (Brunet-Jailly, 2005) with the government of nation-states enforcing everything up to and along their national borders (Perkmann and Sum, 2002). As such, borders were hard lines and barriers. However, within the last few decades, the process of globalization has created increasingly global integration between political, economic, and cultural interests, in a sense eroding and permeating these hard lines. The processes that have brought this about include an increasingly integrated world economy, a proliferation of supranational organizations, and an emerging global culture (Blatter, 2004; Konrad and Nicol, 2008; Perkmann and Sum, 2002). There has been a shift in the spatial scale where cross border issues are addressed, or "hollowing out" (Swynedouw 1997, p 160) as responsibilities traditionally managed by central governments are pushed both upwards to newly formed supranational organizations, but also at times downwards to regional or local levels of government (Leresche and Saez, 2002).

As borders change, so do the lands that buffer them. As differing and more prolific forms of subnational cross border interactions occur, quasi cross border regions (CBRs) emerge. These border regions are focused not on a sense of shared space but rather on a shared opportunities or concerns. Blatter (2004) notes that much of the emerging regional cross border cooperation (CBR) is not aimed at managing a geographically explicit cross border territory, but rather is focused on the extent and scale of particular cross border issue or function. As cross border issues can vary in scope depending

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on their focus (be they economically, socially, or environmentally defined) multiple, competing, and overlapping functional regions can emerge in one space.

Cross border cooperation in these global cross border regions engages a wide spectrum of invested stakeholders, be they local, regional, national, or supranational, or from the public or private sector. Thus, governance in border areas is situated and contained within a complex, hierarchical system, involving actors from both the public and private spheres who have formed connections not only horizontally across the border, but also vertically between differing political levels of government (Blatter, 2004; Konrad and Nichol, 2008; Norman and Bakker, 2009; Scott, 2000).

1.3.3 Cascadia. CBRs do not exist in a vacuum, and the context in which they are situated affects what type of CBC emerges, and this usually never exactly mirrors the theoretical CBRs described in the last section. The border region of Cascadia cannot be defined with explicit boundaries and is somewhat nebulous (Alper, 1996). For this thesis, establishing an exact geographical definition of Cascadia is not necessary, aside to say that Cascadia can refer to any number of conceptions of a border area situated in the Northwest portion of the United States and the Southwest portion of Canada. Despite the lack of a singular definition Cascadia is more than just a label or construct, and there are many more tangible linkages in this part of the US-Canadian border than anywhere else. The number of formal and informal linkages based on environmental concerns shared between Washington State and British Columbia are the highest of any other pairing of a US state and a Canadian province (VanNijnatten, 2009). Alper (2004) notes that in addition to state and provincial level governmental environmental partnerships, there are numerous linkages between environmental NGOs within the Cascadian region, although they may still lack explicit transboundary goals or formal affiliations.

While it is easy to tally and observe tangible environmental linkages between government institutions and non-profit ecological organizations, Cascadia also exists mentally as an ecological utopian paradise. This conception of Cascadia as a physically natural region was first popularized in

Ernest Callenbach's 1975 novel *Ecotopia,* in which an idealized society based on values of conservation split from the United States and built an environmental Utopia. The discourse promoting an ecological version of Cascadia in direct contrast to a Cascadia based on an economic vision. The economic version of Cascadia is based on the idea that there is an innate economic prowess of the region (Alper, 1996; Blatter, 2004).

While there is a history of ideological and observed articulations of Cascadia, in practice the region is plagued by a number of challenges and obstacles that inhibit cross border environmental stakeholders from fully developing and implementing binding regulatory or enforcement activities across the border. Such challenges include the domineering presence of both Canadian and American federal levels of government, border security policies that emphasis the reduction of risk at the expense of legitimate flows of people and ideas across the border, and differing political systems and cultural values.

While some amount of rescaling has occurred in North American, Norman and Bakker (2009) discovered that the decreased involvement of federal levels of government in small scale cross border issues has not necessarily translated to increased institutional empowerment and decision making abilities for subnational authorities. This has limited subnational authorities from making any lasting or binding commitments that could improve environmental conditions.

A lack of interest from the faraway capitals of Ottawa and Washington DC is not the only factor inhibiting localized transborder stakeholder collaboration. The border itself has become more difficult to traverse as security practices have become tighter and more stringent. According to Ackelson (2009) there was a great deal of promise following the initiation of NAFTA that the US-Canadian border would become little more than a formality between the two nations. However, September 11th, and fears of terrorism have eroded the goodwill engendered for an open border. The border has becoming increasingly militarized, with the United States placing security ahead of trade, and far ahead of environmental concerns (Nichol and Konrad, 2008). The increasingly thick border has had implications for subnational cross border cooperation. Konrad (2009) argues that the

increased emphasis on security at the US-Canadian border could lead to "breaking points", where cross border social and working ties become pressured to the point of no return, permanently dissolving any atmosphere conducive to cooperation.

Even if security concerns were not an issue, the ability to institutionalize decisions of subnational authorities is challenged by two very different political systems As Alper (2004) notes the balance of power between states/provinces and the federal government differs in Canada and the United States, with the US being more centralized in terms of environmental policy formulation and implementation. There are also vast structural differences between the Canadian parliamentary system of government and the American congressional system. Finally, the level of public input allowed differs between the two nations, with the United States inviting more citizen participation then Canada allows (Alper, 2004; Norman and Bakker, 2009; VanNijnatten, 2009).

Finally, formal, political engagement is viewed with some suspicion and reticence from the Canadian side. While America and Canada do share similar cultures, values, and economic conditions, Canada has had a long standing fear of being engulfed by their massively stronger, wealthier, and larger southern neighbor. As such, Canada has resisted integration with United States based on the fear that such integration would lead to a loss of sovereignty (Alper, 2004; Brunet-Jailly, 2008).

All of these obstacles leave Canadian and American subnational border stakeholders with one viable option for addressing a shared environmental concern: cooperation.

1.3.4 Social Capital. With little or no chance that subnational cross border stakeholders involved with the SWA can engage formally across the border, they are left with the option of informal cooperation. In order to examine how cross border relationships were formed and strengthened, the concept of social capital has served as a strong theoretical framework for my research. Social capital has become a broad concept that has been theorized and operationalized in a number of different disciplines, resulting in a multiplicity of different and sometimes contradictory definitions, (Adler, 2000).

Despite the vast discrepancies and disputes over what social capital is or is not, it is generally accepted to be both networks of individuals and the norms of behavior that allow for other forms of capital to be accumulated and shared by a collective (Bourdieu, 1986; Coleman, 1988; Putnam, 1993; Woolcock, 2001). As one of the most well-known authorities on social capital, Putnam (1995) succinctly defined the concept as "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit (p. 67)". Social capital will strengthen with use (by means of individuals interacting more frequently with one another), but depreciate with disuse (Bourdieu, 1986).

Differing types of social ties have been identified. "Bonds" are connections between members of homogeneous group, such as a family or ethnic group. There are also "bridge" connections between agents of heterogeneous groups (Woolcock, 2001b). Furthermore, ties can be distinguished on the amount of familiarity between connected individuals. Coleman (1988) distinguished between "strong" ties, which connote a high level of familiarity, and "weak" ties, or ties between individuals that are less familiar or close.

The role of trust in social capital is disputed, with some claiming it is necessary to create social capital (Coleman, 1988), some claiming trust is a product of social capital (Putnam, 1993; Woolcock, 2001b), and still others claiming trust is an ancillary presence to social capital (Adler, 2000; Fukuyama, 2000). Despite the disagreement, it is clear that where social capital exists, so too will trust be found.

1.4 Utility of Research

Because of the specific nature of CBRs, and more specifically the conditions within Cascadia, the necessity for informal cooperation, and indirectly, the need for trust and social capital exists. By exploring a specific informal cross border environmental working group attempting to nurture a productive cross border forum, I expect there to be several implications of my research. As the SWA is a rare example of a long-lasting cross border environmental working group within Cascadia,

investigating its inner workings could reveal a deeper understanding of how the group operates, and which obstacles most strongly impede their success. If my research reveals that SWA has been able to facilitate and sustain trust and an air of cooperation in spite of the challenges they are faced with (or conversely shows the organization has failed in this regard), there can be both practical and theoretical benefits. From a practical standpoint, an intensive case study of the SWA could yield knowledge about how localized transborder cooperation operates, and this knowledge could be used as a model when initiating cross border cooperation for other transboundary issues. This may be particularly useful in light of the new "Beyond the Borders: a Shared Vision for Perimeter Security and Economic Competitiveness", a 2011 declaration issued by US and Canadian governments which mandates, among other things, a coordinated perimeter approach geared towards "readiness at all levels of our governments" in order to secure borders. Having a model of successful cross border cooperation at a local level (or conversely a cautionary tale) would be incredibly informative. Furthermore, the suggestions for future improvements could be incorporated when developing and implementing policies to reach the vision of the declaration.

From a theoretical standpoint, a better understanding of how cross border cooperation and interaction is created and sustained can contribute to the theory of borders, and lead to a better understanding of how local cross border cooperation can be impacted and constrained by higher levels of governance within a multi-level governance framework**.**

1.5 Organization of Thesis

This thesis is organized into five chapters. The first chapter establishes the research problem and provides the objective for the research. The second chapter will include a background and literature review that pertains to the specific literature of cross border cooperation, social capital, and transboundary environmental regimes. This chapter will not only provide a theoretical background, but will also provide the reader with a historical and practical understanding of US-Canadian transboundary environmental management, as well as the history of the Shared Waters Alliance. The

third chapter will present the methods of data collection and subsequent data analysis. The fourth

chapter will be a discussion and analysis of the findings. This chapter will explore the trends and

patterns in the data collected. Finally, the fifth and final chapter will summarize the research

findings, provide recommendations for further study, and discuss any limitations of the research

conducted.

2.0 BACKGROUND INFORMATION AND LITERATURE REVIEW

2.1 Background Information

2.1.1 Description of Boundary Bay. Boundary Bay is a small bay located directly adjacent to the Peace-Arch border crossing. The bay is bounded to the north by the Canadian communities of Delta, White Rock, and Surrey, and the American exclave of Point Roberts. South of the 49th parallel, a sub-portion of the bay, Drayton Harbor, is the main waterfront of the American community Blaine.

Multiple creeks flow into the Bay, with the Nicomekl, Serpentine, and Campbell Rivers discharging into the Bay on the Canadian side, and on the US side the California Creek and Dakota Creek discharging into Boundary Bay via Drayton Harbor.

2.1.2 Shared Waters Alliance. As discussed briefly in the introduction, the Shared Waters Alliance (SWA) is a unique, informal transboundary environmental working group. Despite its informal nature and relatively small-scale geographic focus, the organization includes a diverse group of stakeholders, and has survived for more than ten years beyond its initial founding in 1999 (Norman, 2009).

The SWA grew out of a need to address chronic shellfish harvesting closures that were first put into place in the 1960s. For years, the fragmentation among jurisdictions led to a dysfunctional, blame the other side attitude, in which each respective side of the border blamed the other for the poor water quality. Eventually, a small group of public sector stakeholders from British Columbia came together to examine the shellfish closures, and the precursor to the Shared Waters Alliance, the Shared Waters Roundtable, was formed. As word of mouth spread, the group grew in size, and spilled across sectors and across the border. One of the first successes of this group was a circulation study of Boundary Bay that helped pin-point source points of pollution into the Bay.

Metro Vancouver	Delta Corp	BC Ministry of the Environment	A Rocha Canada	Township of Langley	City of Surrey
Bay Realty	Semiahmoo First Nation	Little Campbell Watershed Society	BIEAP/FREMP	Nooksack Tribe	Fisheries and Oceans Canada
University College of the Fraser Valley	Drayton Harbor Shellfish Protection District	Environment Canada	Kwantlen Polytechnical Institute	EPA	City of Whiterock
Whatcom County	BC Ministry of Agriculture, Food & Fisheries	Tynehead Hatchery	Nicomekl Enhancement Society	Whatcom Conservation District	Hirsch Consulting Services
Delta Farmland and Wildlife Trust					

Table 2.1. Organizations and Agencies Currently or Historically Represented at SWA (Shared Waters Alliance, 2006)

Today, the goals of the group have widened to include not just shellfish harvesting issues, but also general water and environmental quality within the bay. As stated by the SWA, their objectives as of 2006 were to:

1) To characterize and identify key sources of contamination into Boundary
Bay.
2) To undertake outreach and pollution prevention projects that reduce
contamination levels in tributaries and the Bay itself. (Shared Waters Alliance, 2006).

Determining just who can be considered a member of the SWA is difficult, as the group remains entirely voluntary. However, according to a contact list from the most recent chair of the SWA, Table 2.1 comprises a number of agencies and organizations that have, or continue to be affiliated with the group. This same contact list provided the names of 39 individuals. While not all of these individuals are regular participants in the SWA, they have at one point or another been affiliated with the group.

The frequency in which the group continues to meet and work together also appears to be in flux. As recently as 2009, the group would meet bi-monthly (Norman, 2009). However, since that time it appears the group has only been meeting annually. None the less, at the time of this writing the SWA still considers itself to be an active group, despite the downturn in meetings.

2.1.3 History and Current State of Shellfish Management. While the SWA has expanded its focus and activities considerably since it first formed in 1999, the original impetus of the group was spurred by shellfish harvesting closures that had been in place on both sides of the border since the early 1960s (Spenner Norman & Bakker, 2007). Shellfish growing areas were polluted with bacteria and fecal coliform contamination entering the watershed from upstream. The shellfish issues remain ongoing, and at the time of this writing there is a lopsided management of shellfish beds on either side of the border. It seems appropriate to briefly describe the respective condition and management of shellfish harvesting on either side of the border (Spenner Norman & Bakker, 2007). In the US, shellfish harvesting has resumed to an extent. Clean-up measures were undertaken in Drayton Harbor, and by 2004 the area was granted conditional use (Norman, 2010). However, this access was revised to seasonal openings after a 2010 study found that contamination levels seemed to correspond to seasonal events, not rainfall events as initially assumed (Combs & Berbells, 2010). Thus, shellfish harvesting is currently prohibited from November to
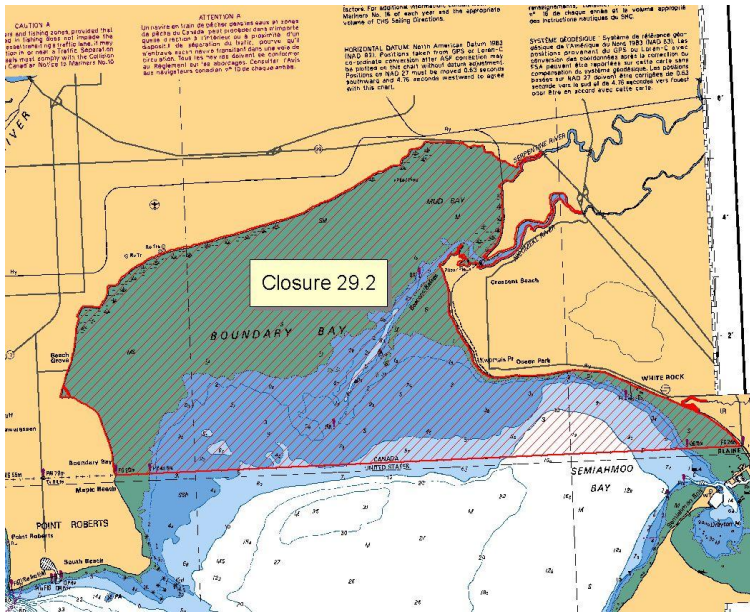
Figure 2.1. Closure Area 29.2 (From DFO)

February. However, in Canada shellfish harvesting remains closed. In what the Department of

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Fisheries and Oceans classifies as Area 29.2 (Fisheries and Oceans Canada, 2012) harvesting of all bivalve shellfish for any purposes is prohibited.

On the American side of the border, both commercial and recreational shellfish harvesting is controlled by state level agencies, albeit in compliance with standards set by the National Shellfish Sanitation Program (NSSP), which lays out sampling requirements and toxin and bacterial standards. In Washington State, the lead agency is the Washington Department of Health, which partners with local governing shellfish boards to monitor and enforce shellfish policy. There are several pieces of legislation that guide shellfish policy in the state. Chapter 246-282 WAC., Sanitary Control of Shellfish, created performance standards for commercial operations for everything from growing to retail of shellfish products. Chapter 69.30 RCW Sanitary Control of Shellfish provides protocol for the sanitary control of shellfish. This legislation dictates that commercial harvest can only occur in approved areas and that processing of shellfish must be conducted according to specific standards. This statute requires adherence to other water pollution statutes.

In terms of recreational harvest, there is Chapter 246-280 WAC Recreational Shellfish Beds. This legislation set minimum sanitary requirements for shellfish harvest, and developed procedures for evaluating the quality and safety of beaches. The Washington Department of Health determines the classification of recreational harvest areas based on three criteria:

- Marine water covering shellfish bed does not exceed geometric mean of 14 fecal coliform bacteria/100ml water.
- 10 percent of individual water samples may not exceed 43 fecal coliform bacteria/100ml water.
- No less than 15 samples may be taken for each water quality station.

In addition, there must be no major sources of pollution located nearby, and there can be no exceedences of toxins such as PSP. If a harvesting area has been closed, it can be reopened after sanitary standards have been met and maintained after two consecutive sampling periods.

Canada's shellfish program, the Canadian Shellfish Sanitation Program (CSSP) is administered jointly by three agencies: the Canadian Food Inspection Agency (CFIA), Environment Canada (EC), and Department of Fisheries and Ocean's Canada (DOF). There is some overlap in authority and responsibility, but the three agencies basically have distinct roles in administering the program.

The CFIA is the lead agency, and by and large they focus on the commercial aspects of shellfish production and post-harvest concerns. For instance, they have the ability to regulate processing plants, shipping, certification, and storage of shellfish. They have the authority to suspend or decertify processors. They also regulate the controlled purification of shellfish, and verify product quality.

Environment Canada is the main agency responsible for conducting monitoring of contaminate levels. EC identifies safe harvest areas and conducts water quality monitoring in accordance with the CSSP Manual of Operations criteria. More specifically, EC conducts sanitary and bacteriological water quality surveys, identifies the sources of both point and non-point source pollution, and recommends the classification of harvest areas.

DOF is in charge of enforcement. This agency enforces and controls harvest areas that are classified as contaminated or closed. They patrol growing areas, and regulate relaying, transplanting, and replanting of shellfish. This agency also regulates licensing of harvest locations and harvest times.

There is a precedent for US-Canada cooperation on shellfish issues with the 1948 Canada-United States Bilateral Agreement on Shellfish. However, this agreement was specific to shipments of shellfish across the border and not the environmental quality of shared harvesting areas. This agreement called for standards set by both the United States Public Health Service and the Canadian Department of National Health and Welfare to share criteria for shellfish shippers. Compliance with those measures is to be reported to both agencies, as well as any subnational authorities involved in

shellfish management. If either agency has a desire to inspect a handling facility, the other agency will facilitate their request (Bilateral Agreement on Shellfish, 1948).

2.1.4 Existing Cross Border Governing Mechanisms. While there are no other mechanisms in regard to transboundary shellfish management between the United States and Canada, several environmental agreements or coalitions that pertain to water and water quality exist. These will be discussed in depth below.

2.1.4.1 International Joint Commission. The International Joint Commission is a long-standing bi-national instrument that has been in place for more than 100 years. The commission was created by the 1909 Boundary Waters Treaty between the United States and Canada as a way to replace the ad hoc commissions that were being continually convened to settle transboundary water disputes. Boundary waters are defined as "waters from main shore to main shore of the lakes and rivers and connecting waters, or portions thereof, along which the international boundary…passes, including bays, arms and inlets thereorf" (Boundary Waters Treaty, 1909). The treaty was initially established to maintain navigable routes on major waterways between the two nations, and has been criticized as being outdated and overly narrow given modern day concerns such as pollution or habitat preservation (Allee, 1993).

The treaty was written to accommodate and preserve each country's sovereignty and accommodate their respective desires to utilize water without impediments by the other, with two major caveats. The treaty specified that if countries used or diverted water in their territory in a way that impacted or injured downstream users, the injured parties had a right to pursue legal compensation. Additionally, no action can be taken that would significantly alter ability the navigability of the waterways (Boundary Waters Treaty, 1909).

The treaty created the International Joint Commission (IJC) in order to provide a forum to execute and monitor the provisions of the treaty. The primary function of the IJC is to serve as an investigatory tool, and while it can make recommendations over a binational dispute, the IJC itself has no binding authority to implement its findings. The IJC is composed of six commissioners, three from each country. They are appointed by their respective heads of state, and are supposed to remain impartial in their duties. In theory, a country can unilaterally refer a transboundary dispute to the IJC; in reality, this has never been done and referrals have always been binational in nature (Lemarquand, 1993).

Among some of the major criticism of the IJC, aside from being outdated, is that the binational mechanism is not able to devote time and resources to transborder disputes that are small in scale, and is therefore largely ineffective at dealing with small scale transboundary issues (Norman & Bakker, 2009). Within recent years, the IJC has taken steps to attempt be more useful at a smaller scale by developing International Watershed Initiative Boards (*IWI*, 2009). These boards are intended to be smaller scale boards targeted at the watershed level. Additionally, rather than serving as a dispute resolution mechanism, they are intended to employ a cooperative, technical "participatory, ecosystem-based approach" (p 3). As of 2009, there were only three pilot boards: the St Croix River, Red River, Rainy River, and most recently the Souris River boards.

2.1.4.2 BC WA Environmental Cooperation Council. There is a longstanding, formal institutional relationship between the governments of Washington State and British Columbia, and their respective environmental agencies. On May 7, 1992, Premiere Mike Harcourt and Governor Booth Gardner assigned the Environmental Cooperation Agreement, signifying that the two entities "wish to share information and to cooperate on environmental matters, are prepared to work together with respect to their responsibilities, and wish to enter into specific cooperation arrangements" (Harcourt & Gardner, 1992). This agreement created the British Columbia/Washington Environmental Initiative, and the Environmental Cooperation Council (ECC) that was responsible for

administering it. The newly formed council was managed by the heads' of the BC Ministry

Environment and the Washington Department of Ecology. The council initially tasked itself with five

priority issues: water quality in Georgia Basin-Puget Sound, water quality in the Columbia River-

Lake Roosevelt Area, flooding in the Nooksack River, regional air quality, and management of the

Sumas-Abbotsford Aquifer (Alley, 1998).

At the time of this writing, the council is celebrating its 20th anniversary. Its initial foci have

been delegated to individual task forces now called: Abbotsford-Sumas Aquifer, Flooding of the

Nooksack River, Air Quality in Lower Fraser Valley/Pacific Northwest Airshed, BC-Washington

Coastal and Ocean Task Force. Aside from these task-specific work groups, the council as a whole

convenes annually (Environment, n.d.). Several memoranda of understanding have been produced

through this coalition, including MOU's focused on environmental assessment, referral of water

rights applications, air quality, and the Columbia River.

Despite the longevity and successes of the ECC, there are general criticisms that can be made.

While a long-lasting organization, the council has not progressed beyond cooperation and information

sharing. Although the agreement was formalized in writing, this agreement does not bind either party

to any future participation, and its sustainment relies on the interest and willingness of the respective

governments to remain committed. With no obligation to remain engaged, the ECC is always at some

risk of disintegration when administrations, budgets, or priorities change (Alley, 1998).

2.2 Background Literature Review

2.2.1 Governance. This thesis will frequently utilize the phrase governing regime to

describe the behavior and conduct of the Shared Waters Alliance, and other instances of cross border

cooperation and interaction. To avoid confusion, the particular meaning with which I apply to the

terms regime and governance must be made explicit. By governance, or governing, I borrow from

Stokke's (1997) definition that "governance can be understood as the establishment and operation of a

set of rules of conduct that define practices, assign roles, and guide interaction so as to grapple with

collective problems" (p 28). By this definition, a governing regime need not be a formal institutional organization, but rather an organized collective of individuals bound by a shared sense of purpose and conduct. Such a governing regime can exist in tandem with, or in spite of more traditional government institutions.

Leresche and Saez (2002), whose work on cross border cooperation will be discussed at length below, also utilize governance in this sense. Governance from this view point is comprised of functional linkages between actors from differing sorts of institutions and organizations, and from different levels. Above all, this sort of political regime is "depassionnant," "depolitisant," and "desideologisant," that is, immune from emotional attachments to a national identity, free from partisan divides, and finally free from ideological motives.

2.2.2 Cross Border Theory

2.2.2.1 Globalization and Rescaling of Responsibility. Any discussion on cross border cooperation (CBC) within the modern world must begin with the causes for such increased cross border interactivity and integration. In the research reviewed, an overwhelming number of the factors instigating CBC were either directly or indirectly attributed to globalization. Globalization is a topic in and of itself, but it was succinctly defined by Newman and Kliot (1999) as "a process by which places and institutions become integrated into a system that has global economic dimensions" (p 2). Not only has globalization resulted in the creation of new areas of production, but the authority and ability to make decisions have shifted. The authority once previously situated within the exclusive domain of central national governments has been decentralized, being passed both upwards to newly created supranational organizations, but also downwards to subnational or regional entities (Perkmann & Sum, 2002). Swynedouw (1997) refers to this as the "hollowing out" (p 158) of the nation state.

The rationale for this devolution is attributed to a lack of ability of far-away national governments to effectively monitor and make decisions in places of renewed production. The primacy of national economies is no longer an intelligent basis for strategy, and the areas of production have shifted to "natural" areas of production that may not correspond with the borders of nation states (Jessop, 2002). Regions have specific characteristics and unique problems that nation states are not necessarily adept at addressing, as such increasingly regional actors are acting on their own behalf to secure opportunities or resolve issues (Jessop, 2002).

In addition to integration that supersedes nation states spurred by a global economy, several authors have noted that changes in political conditions can also serve to catalyze the development of cross border cooperation. Perkmann and Sum (2002) claim that the end of the Cold War exposed countries that were previously sequestered behind the Iron or Bamboo curtains to a global political and economic climate, immediately spurring regional interactions with their neighbors.

From a non-economic point of view, engaging and encouraging interaction across borders or at a regional scale can also be an effective political strategy for countries to distance themselves from political ills, as Scott (2000) noted in the case of Germany, a country that desperately wished to separate itself from a fascist image that had developed under Nazi Germany.

No matter the cause of cross border regionalism and resulting cooperation, there has been a consistent process of re-scaling and re-imagining of place along political, economic, and cultural dimensions at borders throughout the globe (Newman and Kliot 2002). Swynedouw (1997) noted that the re-scaling process has not been without contest, and that scales of production, whether it be along political, economic, or cultural dimensions, are often in dispute by various levels of government, be they national, regional, and local governments. The result is a multiplicity of conceptualized and material scales of interaction that simultaneously co-exist and contradict one another (Swynedouw, 1997).

2.2.2.2 General Frameworks for Examining Cross Border Cooperation and Regions.

Globalization and re-scaling are messy in both conception and reality, and as a result cross border cooperation is difficult to examine empirically or theoretically. However, similar strains of observation have emerged between the particular literatures reviewed. Most authors employ a framework that attempts to examine cross border cooperation in both the discourse shaping the interactive processes, and the material practices that result. Brunet-Jailly (2005) developed a theory that would examine both the structures and agency decisions that determine CBC practices. His model included four dimensions at border: local cross border political clout, market forces and trade flows, the policy activities embedded in multiple layers, and the local cross border culture. In a slightly more compact framework, Perkmann and Sum (2002) proposed examining CBC by the mobilizing discourses, the scalar articulation, and the governing institutions present. Scott (1999) proposed a similar framework that examined CBC on the cognitive dimension of cross border residents, the discourse being perpetuated by governing bodies, and the material practices actually occurring.

The literature surveyed varies in its description and categorization of CBC. The various evidence and forms of CBC observed and cataloged by the reviewed authors is diverse, and sometimes contradictory. On every dimension, from the catalysts driving the development of CBC, to the structure of governance, to the involved parties, there is a good deal of dissension. Below are some of the main points of disagreement in the literature reviewed, with a focus on the actors

Figure 2.2. Model of Borderlands Studies (Brunet-Jailly 2005)

Text within figure:

Local Cross Border Culture:
Sense of belonging, common language, or ethnic, religious, socio-economic background, spans the border, and borderland.

The Policy Activities of Multiple Levels of Government:
Multilevel governance spans the border to link (type 1) local, regional, provincial, state, and central governments, and (type 2) task specific public and private sector organizations.

Theory of borderland studies main hypothesis: **If each analytical lens enhances or complements one another, what emerges is a borderland region that is culturally emerging and is integrating.**

Local Cross Border Political Clout:
Active local civic and political organizations and individuals initiate and expand: Local level relations, local policy network, local policy communities, symbolic regime, local cross border institutions. All span the border and borderland.

Market Forces and Trade Flows:
Flows of good, people and investments span the border and borderland.

responsible for instigating CBC, the structure of CBC regimes, and the spatial definition of cross border regions.

There is a good deal of discrepancy among authors who observe the creation of CBC as a bottom-up, natural coalescing of local actors, and those who see the proliferation of CBC activities as a result of policies, pressure, and influence being exerted by supranational or national organizations. James W Scott, in his 2000 profile of CBC at German borders, primarily cites the European Union (EU) as being responsible for influencing and encouraging the development of CBC at European borders. Scott's argument is that the newly formed EU hoped to promote continental integration, and as a strategy to accomplish this goal offered both financial and political incentives to local border actors. As the EU provides incentives to create CBC, they held the ability to determine which projects or proposals were worthy of being funded. The result has been that CBC throughout the continent is consistent and formulaic in order to capture EU funding (Scott, 2000).

Also looking at Europe, Leresche and Saez (2002) have an entirely different perspective leading to an entirely different observation. In their view local authorities at borders act in response to globalization and consciously work to establish linkages as a direct challenge to the traditional national governing regime. They claim that as national governments have hollowed out, the importance of a territorial homogeneous national entity and its corresponding absolute control of borders and their functions are contested. The governing regimes at borders undergo a crisis, transforming from the traditional "limes" regime to a "marche regime in which local and national politics struggle to establish and control the practical and cognitive practices at the border. Eventually, this intermediate governing regime gives way to a third ideal, the "synapsis" regime in which multiplicities of single purpose cooperative linkages are the norm (Leresche & Saez, 2002).

A third author takes a stance that exists somewhere in the middle of the bottom-up and top-down catalysts described by Leresche and Saez and Scott. Blatter (2001) takes a tempered view that allows for CBC to be observed as being catalyzed by both actions from the bottom-up by local actors

while also interacting and being influenced by actions from the supranational or nation levels, creating a symbiotic cycle. Blatter (2001) noted that environmentalists first began communicating across the Swiss-German-Austrian aquatic border in regard to concerns over the impact of recreational boating on the habitat of migratory birds in Lake Constance (a lake in central Europe bordered by Germany, Switzerland, and Austria). Their goals were to simultaneously protest and push for stricter and consistent boating regulations. A counter coalition of pro-boaters formed in response. The two coalitions continued to build linkages, reinforcing their respective agendas and conceptions of how the border area should be utilized. As the emerging EU formed, officials within the organization began looking for opportunities to fund cross border projects. Local politicians hoping to capture this funding seized on the momentum created by the respective grass roots organizations and formed political linkages, effectively serving as mediators between the conflicting coalitions of boaters and environmentalists.

Blatter has applied his framework not just to European borders. A 2000 work discusses the rise of both environmental coalitions that gave rise to the CBR that this thesis also focuses on, Cascadia. Blatter observed that instances of economic integration and exchanges were being instigated by the actors from the private sector within the border area, giving rise to an economic version of Cascadia simultaneously as an ecological version was being promoted. Blatter does note that unlike in Europe, Cascadia has received far less influence from a supranational or national level of governance, and as a result there has not been the development of top-down CBC institutions that can mediate between differing sectorial CBC linkages, as he observed in the Lake Constance example.

Scott (1999) also observes that there has been the development of some bottom-up linkages in North America. Unlike Blatter, he does insinuate that influence from the top-down has had an impact. Namely, he credits instances of CBC in North America as coming in response to the development of the North American Free Trade Agreement (NAFTA), and therefore still indirectly the result of activities and influence undertaken by national and supranational levels of governance.

2.2.2.3 Structure and Nature of Governing Regimes in CBRs. Regardless of whether or not CBC is instigated by the grass roots efforts of local actors or as a result of political maneuvering by higher levels of government, sorts of linkages or regimes that materialize differ, both due to where the CBC is situated and due to the particular individual observing and describing it. The literature reviewed cataloged a wide range of cross border governing mechanisms, ranging from traditional technocratic regimes to cooperative ad hoc linkages. While some of the wide breadth of governing regimes observed is due to the differing geographical contexts in which the CBC being examined is situated, it also gives credence to the fact that CBC is still an unrefined concept, for which there is no universally agreed upon definition.

Leresche and Saez (2002) envision the ideal governing regime for CBC as what they term synapsis; that is, cooperative linkages that are constructed around a singular issue and involve only invested stakeholders. These linkages will be devoid of political ideology, sentimentality, or territorial identity or emotional attachment, and will be concerned only with addressing a single pragmatic concern or opportunity. These linkages will be ad hoc and will exist only so long as they continue to serve a purpose. There will be no division between stakeholders from differing sectors, and will result in a melting pot of individuals and institutions from the public and private sectors.

In contrast to the cooperative, flexible governing regime observed by Leresche and Saez, both Perkmann (2003, 2007) and Scott (1999) envision CBC governing institutions as a scaled down version of traditional and technocratic governing institutions. In their opinion, CBC is conducted completely within the domain of the public sector and is nested at the bottom of a multi-level governing system in which upper levels of governance exert control and influence. Unlike the Leresche and Saez perspective which claimed CBC would be based on single purpose functional linkages, the perspective of these two individuals claims that CBC governing institutions are essentially the melding of already established institutions that happen to be on opposite sides of

national borders (Perkmann 2003; Perkmann, 2007; Scott 1999; Scott, 2000). One significant difference between Scott and Perkmann's perspectives is that Perkmann is somewhat more optimistic than Scott about the ability of private sectors actors to engage in cross border governance. In Perkmann (2003), Perkmann optimistically describes the EU program, Interregg IIIA, which subsidizes collaborative projects undertaken jointly by local governments and private organizations.

Blatter (2004) envisions a far more complex vision of governing mechanisms within CBRs, and in a way could be viewed as a composite between the opinions of Leresche and Saez and Scott and Perkmann. Unlike the former authors, he notes that there can be multiple forms of CBC governing structures, and that these structures can interact and mediate between one another. He notes four types of CBC institutions: commissions, coalitions, and consactions, and connections. Of these, commissions exhibit the traditional binational communication structures, while coalitions and connections are ad hoc sectorial linkages. A consaction is a type of cross border organization that "combines idealistic ties with the logic of spaces of place" (p 535).Specifically, such cross border organizations motivate regional and political forces to ply regional identities in order to motivate differing sectors of CBR actors to pull for shared goals. They are emotionally and spatially anchored in a mutually shared space, but they are none-the-less functionally minded organizations. Blatter notes that within the context of Europe, consactions have been able to successfully mediate between coalitions and connections.

While Blatter sees a need for a mediating force, a traditionally structured governing regime (Blatter, 2001; Blatter, 2004), he also sees the productivity potential of ad hoc, cooperative, single purpose linkages. Namely, he credits them with serving four purposes: creating a normative environment for regulatory regimes to emerge, functioning as a transfer hinge for the transmittal of information across the border, creating a space for joint innovation, and facilitating coalition building between like-minded actors across borders (Blatter, 2000).

2.2.2.4 Spatial Boundaries of CBC and CBC Institutions. Given the general lack of consensus elsewhere in regard to CBC theory, it is unsurprising that there is a lack of consensus in regard to how cross border regions are bounded and how territorial space is constructed and accepted. Some of the authors argue that cross border regions are delineated with an explicit, stable, uncontested geographical limit (Perkmann, 2003; Perkmann, 2007; Scott, 2000), while other authors observe boundaries that are ephemeral, based on function rather than territorial identity or shared idealistic vision, and vacillate over time (Jessop, 2002; Leresche and Saez, 2002).

Blatter (2004) distinguished between "Spaces of Place" and "Spaces of Flows". Spaces of place are geographical understandings based on a sense of place and territorial identity, while spaces of flow are functionally targeted linkages based on a specific cross border issue or opportunity. As such, the bounding of the cross border area is actually composed of multiple, overlapping or conflicting, fuzzy scales and cannot be explicitly mapped out.

Leresche and Saez (2002) also noted that cross border areas would be inundated by multiple single purpose, functional linkages, or units of "synapsis," leading to no explicit territorial space. Jessop (2002) agrees that cross border economic spaces have no solid boundaries, and in fact, in the initial construction of new spaces, there can be multiple competing and often conflicting scales of production and interaction, and few will be stable or institutionalized. With no sense of direct structure or delineated space, the necessity of "interpersonal networking and inter-organizational negotiation become crucial in bridging the public-private divide across frontiers and in securing the cooperation of so-called key players" (p 37). The necessity of such relationships comes to the fore in promoting long-term cross border regions and channels for cooperation (Leresche & Saez, 2002).

In contrast, the CBC and resulting CBRs observed by Scott (2000) in Germany had very explicit and clear boundaries. In order to capture EU funding, local institutions on either side of the border would collaborate in order to be recognized as a Euroregion and therefore eligible to receive INTERREG funds. Because these institutions must come to agreement on specific projects to focus on that correspond with set Transboundary Development Concepts, these CBR institutions are more a

melding together of existing institutions, more enduring and focus on multiple functional concerns (Scott, 2000).

Throughout the cross border cooperation literature, there has been a great amount of disagreements. This lends credence not only to the fact that the concept is currently undefined, but also that emergence and reality of CBC has been messy and highly context dependent. By focusing on CBC in Europe, differing conclusions will be reached than if CBC is being observed in North America. The role of geography is critical in the development and reality of CBC. The following section will examine the specific context of the CBC situation within Cascadia, the somewhat nebulous cross border region at the western edge of the US-Canadian border, the site where this research focuses.

2.2.3 Construction of New Regional Spaces. The emergence of new cognitively constructed and communally understood regional spaces, whether located at or away from the border, is accelerating in the post-globalization world. These regions vary greatly in structure and purpose, but one common thread between them is that they are being formed irrespective of the traditional political boundaries in place. When considering newly created or reinvigorated regional spaces, it is important to examine the process by which they are imagined and constructed, be they based on cultural, economic, or political factors.

2.2.3.1 Explanation for a Rise in Regional Spaces. Agnew (2000) argues that the recent emergence and development of regional alliances or identities that do not correlate directly to political boundaries is a direct result of two prevailing political and scholastic dogmas from the late 1980s and 1990s: Neoliberalism and globalization. While the nuances of these two theories vary, they both predicted that a global economy would eventually level the playing field and remove inequality among regions. A few decades later, a level global playing has not occurred, and in its place Agnew observed that an increase in regional differences and importance has occurred. Agnew

parsed the literature surrounding regions according to three lines of inquiry: regional competition, global city-regions, and historicizing regions. While the emphases of these literatures is different, the common theme among them is the indication that newly emerging regions are being articulated in a decisive and strategic way by individuals and groups located within them. These regional promoters are either working to emphasize the competitiveness of their respective region in the global system, or reacting to "increased impatience with the seeming inability of national governments to address problems specific to their various regions and the fact that firms now have geographical imaginations that privilege regions" (p 105).

Paasi (2003) argued that the construction and promotion of regional spaces has come as a response to globalization, and is a process that allows regional stakeholders to engage in an assertive resistance to the identities imposed on them. Thus, by asserting boundaries that have not been imposed or recognized by central governments, regional promoters have power to articulate who they are, and subtly take control of the territory within the boundaries they articulate (Paasi, 2002). Above all, regional spaces must be constructed with a strong and mutually shared sense of space. Henkel (1993) described how bioregionalists believed that to form long-term and self-sustaining ecological regional spaces, there must be a strong bond and understanding of the geographic place in which a region is situated. With an emotional bond and intellectual understanding of an ecological regional space, residents within that region will have a vested interest in maintaining regional identity.

2.2.3.2 How Regions Are Built. Paasi (2003) argues that the process of forming a social identity, whether it is based on a cultural, historical, environmental, political, or economic basis, acts to carve out a social space in physical space. In an earlier work, Paasi (2002) does acknowledge that there needs to be a certain amount of institutional thickness and cognitive acceptance by the majority of regional residents in order for a region to be considered legitimate.

This cognitive understanding means that residents within the space must be aware of the extent of the region and regional identity, agree with the conception and identify with the region for a

practical space to emerge, a practical space in which regional promoters can initiate and mobilize

their goals (Paasi, 2002). Indeed, while there may be a few key individual leaders promoting the

concept of the region, the creation and solidification of regional space must be backed by collective

effort and agreement of most, if not all, regional residents (Paasi, 2002). MacLeod and Jones (2004)

echoed Paasi's assertion that regional creation is a collective effort. They assert that as the regional

community forms social capital, or social networks and norms of reciprocity, mutually beneficial

activities take place, foster a sense of community which will be perpetuated, in turn will strengthen

and further promotes the region.

While these post -globalization regions are anchored in a particular place, they do not reflect

the hegemonic, explicitly bound territories such as nation states. While these regions may be a

reactionary result, they do not necessarily undermine political borders. Paasi (2003) explains that

regional identities can be nested within one another and exist at multiple levels. Agnew (2000) also

agrees that while regions need some sort of geographical understanding in order to exist, they are

defined more by the functional needs of a particular time and place rather than existing as a static

territorial entity. Thus, the boundaries of the regions will be amorphous, unclearly defined,

dissipating or changing when no longer needed. Jones and MacLeod (2004) assert that these

emerging regions "should be conceptualized as relatively permeable, socially constructed, politically

mediated and actively performed institutional accomplishments" (p 438).

2.2.4 US-Canada Border and Cascadia. Cascadia, a border area at the western most

portion of the US-Canada border, exhibits much of the complexity discussed in general cross border

theory. Its abstraction from theory into the practical world also further complicates the understanding

and existence of the concept of a CBR. Multiple cognitive ideals of the region exist and compete for

prominence, and numerous practical linkages across the border serve to support, or contradict, many

of these meanings (Abel et al, 2011; Alper, 1996; Sparke, 2000; VanNijnatten, 2009). The CBR also

faces numerous pressures and challenges, both internally and externally. The complexity of the this

region's structure and form will be discussed below, as will the numerous stumbling blocks cross

border stakeholders must surmount to make any meaningful and productive connections.

2.2.4.1 The Context in Which Cascadia Exists. Cascadia has experienced to an extent the

political, economic, and cultural rescaling (and inherent challenges) noted in the previous section.

Much of the micro-level cross border interaction here is based on functional sectorial concerns, and is

generally ad hoc, episodic, and cooperative (Blatter 2000, Blatter, 2004, Scott 1999). One is hard

pressed to accurately and succinctly define where Cascadia is, in that that there are no solid territorial

bounds, and multiple cognitive discourses promote the multiple different conceptual forms of

Cascadia, albeit nearly all of them fixate on a specific function or concern, not a specific place or

territory There are multiple economic, transportation, and environmental proponents promoting their

own particular vision of Cascadia, none of which share the exact same boundaries (Abel et al; 2011;

Alper, 1996; Spark, 2000). The result is an amorphous region composed of multiple, oftentimes

conflicting discourses, and a reality of practical linkages which do not necessarily reflect these

idealized visions of Cascadia. This is not entirely surprising, as border regions are where individuals

from differing nations and ideologies first come together at the intersection of cultural, political, and

economic dimensions, creating a flashpoint for integration, but also where cleavages between

identities and ideologies comes to a head. Given the amount and complexity of interaction within

Cascadia, the situation of managing ties is not necessarily one of struggle, but of managing the

immense complexity of ideas and practices all playing out in the same space (Loucky & Alper, 2008).

At this point in time, CBC in Cascadia has not progressed to the ideal governance regime described

by Leresche and Saez (2002) (refer to section 2.2.2.3), and there are numerous challenges to cross

border governing ties from within in the border region and from the outside. The following section

will explore the development of the multiple identities and discourses driving interactions in

Cascadia, the cross border activity on the ground, and the obstacles that continue to constrain the efficacy of CBC.

   2.2.4.2 Cognitive and Idealized Version of Cascadia. The concept of a cross border region in this space is not new. As far back as the 1800s, American expansionists utilized rhetoric that plied the themes of a shared biosphere and the long standing presence of native inhabitants to legitimize their push to obtain the entire Oregon Territory (Sparke 2000). Figure 2.5 shows the extent of the Oregon Territory in the 1830s, extending well above today's international border when the US-Canada border was still in the process of being established.

Figure 2.3. Oregon Territory in 1833 (Illman & Pilbrow, 1833)

These themes were again used in the 1920's when the Seattle Chamber of Commerce published "In the Zone of Filtered Sunshine: 'Why the Pacific Northwest is Destined to Dominate the Commercial World'". This literature reused the claim that the natural environment of the area was uniquely poised to allow the region to conquer the economic world (Sparke, 2000). These early efforts used the environment as a tool to justify cross border economic activity, but as time progressed and environmental awareness began to take hold in the 1970s, a conception of Cascadia based on the ecology, not economic potential, of the area emerged. In 1975 Callenbach published *Ecotopia*, a fictional novel in which the Western portion of North America revolted against the United States and formed a utopian society based on

environmentally sustainable practices and steady-state economics. A few years later, Garrereau (1981) wrote the non-fictional *The Nine Nations of North America* which again recognized the existence of a region at the Western US-Canadian border that was bonded not only by a common biosphere, but also by both the similar values and attitudes of individuals living in the region and common industries.

While the concept of Cascadia may not be new, it has been within the past few decades that multiple conceptions, based on differing criteria (be they economy, transportation efficiency, or ecological values), have taken firm hold. While these visions of Cascadia may be based on quite different functions and may exhibit differing spatial borders, they share a common thread. The differing conceptions of Cascadia are united in that the discourses promoting them all have the goal of creating pragmatic structures that allow the border to be transcended (Alper, 1996), not to create an emotional attachment or feeling of belonging for residents on either side of the border. As Alper (1996) notes, "the objective of the various Cascadia visions is to diminish the barrier effect caused by the border in order to stimulate common action on behalf of regional goals" (p 2). In addition to a functional basis, the various Cascadia visions are similar in that the linkages that reinforce their vision are generally targeted towards a narrow and specific agenda, are informal in nature, and ad hoc (Alper, 1996; Blatter, 2004; Buckley & Belec, 2011). Most Cascadian visions share a "reliance of networks of groups (private sector alliances and environmental nongovernmental organizations)" (Alper 1996, p 19) as the force sustaining them, rather than relying solely on the technocratic public sector partnerships.

While cataloging every conceivable conception of Cascadia within the confines of this thesis is not possible, there are three general versions of Cascadia, based either on an economic, ecological, or transportation grounds. They will be described briefly below.

Ecological Cascadia: In the 1970s, McLoskey began examining, and in turn articulating a Cascadia based on the ideology of bioregionalism. That is, a connection to place, particularly the natural and indigenous culture, was indicative of a region that transcended the international border.

McLoskey named this region Cascadia, borrowed from a geologists work entitled *Cascadia: Geological Evolution in the Northwest* (Henkel, 1993). At this time, a rise in worries over air and water quality in the 1970s also stimulated government action. While the U.S took the lead in implementing legislation such as the US Clean Water Act, the paradigm shift towards regulation and legislation targeted at a concern over ecological systems spilled across the border (Day & Calbick, 2008). There is no uniform or clear-cut conception of an ecological Cascadia. How an ecological Cascadia can be spatially defined varies depending on the specific environmental perspective being utilized. Aquatically, one ecological version of Cascadia is defined as the Georgia-Basin Puget Sound waterway. A terrestrial version of an environmental Cascadia has been articulated by the extent of the Northwest Ecosystem Alliance and Cascades International Alliance (Alper, 1996). While differing in ecological orientation, these linkages share environmentally conscious values, respect and concern for ecological habitats, and desire to preserve habitat across border. While there may be an ongoing, shared pro-environment rhetoric on either side of the border, cross border action is often not a result of ongoing relationships and shared discourse, but rather joint action often comes as reaction to an environmental crisis, such as the oil spill off the coast of Vancouver Island (Alper, 2004; Blatter, 2000; Spenner Norman & Bakker, 2009).

Creating environmentally minded cross border coalitions and communities is not restricted to the larger regional scale, such as the Georgia-Basin Puget Sound waterway, but occur at very localized scales. Belec and Buckley (2011) examined the ongoing opposition to the construction of a power plant, SE2, just south of the border in Sumas, WA. What they found were local environmentalists uniting together in shared opposition of the power plant due to concerns about air quality that would impact a very small airshed.

Economic: The economic vision of Cascadia plays at in the same place, but based on rhetoric and purpose is worlds away. However, a nod to shared ecosystems is utilized to legitimatize this version of Cascadia. The general argument for a cohesive economic unit is that Cascadia is natural and due to the shared natural resources bases that promote similar hard industries as well as service

industries such as timber and tourism (Sparke, 2000). As with the environmental vision, the

precedent of an economic Cascadia extends well beyond the recent era of globalization, but as with

all forms of cross border interactions, the quantity and quality of interactions has accelerated in the

past few decades.

The shift from geopolitics to geo-economics is pushing the new style of cross border integration, in which business proponents are not advocating the establishment of a new autonomous space, but rather attempting to minimize the effect of the border in order to facilitate economic growth. Proponents of an economic Cascadia claim that the economic linkages and economic space do not contest the existing political boundaries already established, and that "Cascadia is not

Figure 2.4. Member States and Provinces of PNWER

a state, but a state of mind." The idealistic economic vision is not without its detractors. The

economic Cascadia vision often downplays regional tensions and diversity that exist within the region

in order to create a homogenous economic space. This is attempted "by deploying abstract spatial

language that downplays internal regional distinction by imagining geographies that are ironically

chock-full of touristic explorers, foreign traders, and commodified Natives" (Sparke, 2000 p 16).

While the imagined geographies invented by economic proponents of Cascadia may not be initially

based in a solid reality, the repetition of the idealized discourse can lead to a practical economic

reality, and higher levels of economic of integration have emerged (Sparke, 2000).

As with the environmental vision of Cascadia, there is not an explicit delineation of the

boundaries for the region. However, one of the most common territorial boundaries of this version of

Cascadia has been created by the Pacific Northwest Economic Region (PNWER), an institution founded to bring together public and economic leaders to cooperate and enhance potential regional economic goal (Loucky & Alper, 2008). The current membership in PNWER is rather expansive, and includes Washington, Oregon, Idaho, Montana, British Columbia, the Yukon Territory, Alberta, and most recently Saskatchewan (Pacific Northwest Economic Region, 2010).

Transportation: A final, less popular vision of is a narrow strip of land based on the shared infrastructure (I-5 corridor) between Portland, Seattle, and Vancouver. This vision has been established and promoted by the Pacific Corridor Enterprise Council (PACE) and the Cascadia project (Alper, 1996).

The various discourses promoting Cascadia may not have permeated the consciousness of the average citizen as much as promoters may have hoped. A study undertaken by Abel et al (2011) asked college students from both Canada and the United States to report which territorial
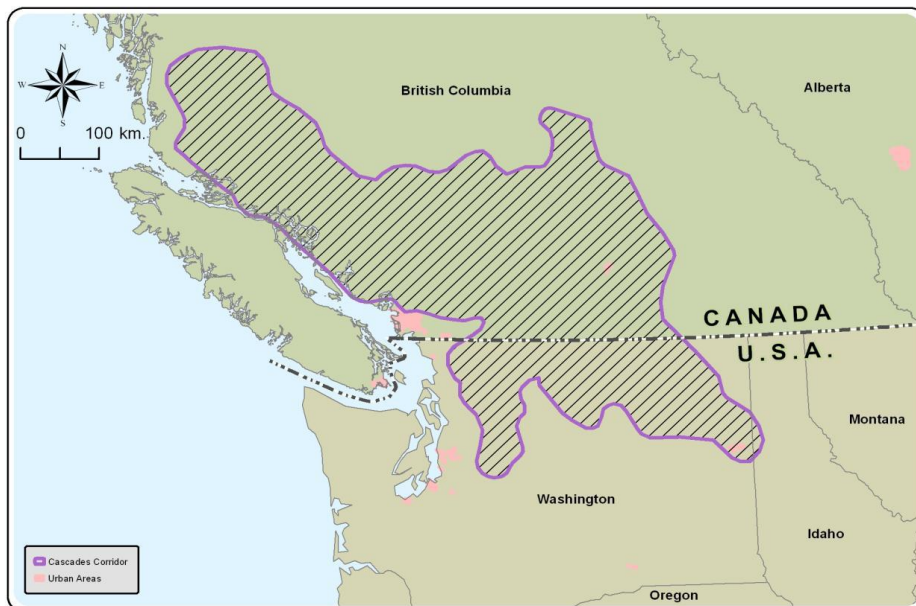
Figure 2.5. Map of Ecological Cascadia (Abel et al 2011)

label they most identified with: Pacific Northwest, country, ecosystem (Cascadia), province or state, or city. Of these choices, the majority identified with PNW, followed by country, and then city. However, awareness of the term Cascadia was high, with 77 percent of the individuals surveyed having previously heard the term. When asked to sketch Cascadia, more than half drew a region that transcended the border.

2.2.4.3 Existence of Practical Linkages Mirroring Discourses. Ecological, economic, or transportation promoters have worked hard to advance their respective visions of Cascadia. These visions do not exist solely in these promoters imaginations, and observations of on the ground linkages supporting any of these visions can be found. A 2009 study quantified environmental linkages across the entire US-Canadian border at a state and provincial level. The study found that there were more environmental linkages between British Columbia and Washington State than any other combination of state and province. When asked to clarify the purpose of such environmental linkages, the stakeholders responsible for initiating and sustaining these linkages cited pragmatic factors such as the condition of shared ecosystems, proximity, and opportunities for economic exchange as the main reasons for engaging across the border (VanNijnatten, 2009).

These linkages are quite young, most originating sometime in the early 1990s (VanNijnatten et al, 2006). This seems to confirm the hypothesis of Swynedouw, Sparke, and others that a shift towards geo-economics is driving cross border interactions and cooperation, as well as serving to spike the concern for environmental issues. A study conducted before this era searched for but found little evidence of any cross border interaction or exchange through the early 1980s (Rutan, 1981). This seems to confirm that the speculation that the rising environmental consciousness in the 1970s and concerns over environmental degradation were leading factors in instigating cross border interactions (Day & Calbick, 2008)

Rutan's work was carried out before the North American Free Trade Agreement (NAFTA). As Brunet Jailly (2008) claims, this agreement has had a huge impact on lowering the border and encouraging economic interactions, as well as contributing to increased communication across a wider spectrum than initially intended. Linkages that were initially constructed for economic purposes have increased general communication and trust across the border, eventually spilling into the political realm. As individuals and institutions interacted repeatedly over time for functional and

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economic purposes, the result has been the creation of shared values, and ultimately the

harmonization of policy in multiple different arenas. The effect of NAFTA has been that the

"lowering national barriers has fostered the development of dynamic subnational regions" (Alper

1996, p 1).

Not all opinions credit NAFTA with promoting widespread cross border interactions and

trust. Nichol claimed that the effect of NAFTA has been to control and prioritize narrow and specific

types of cross border interactions, namely limiting interaction to trade (Nicol, 2005). Whether or not

NAFTA has served to promote integration across a narrow or wide spectrum, it is clear that there is a

massive amount of economic interaction between the two countries. Loucky and Alper (2008)

remarked that the two countries traded in excess of 1 billion US dollars every day. This trend is true

at a subnational level as well, with 35 American states largest trading partners being Canada.

While it is clear that multiple Cascadia's exist, both as idealized propaganda and as real,

pragmatic linkages, there remain very real challenges and obstacles for stakeholders situated on the

border trying to engage in cross border governance. Many of these challenges are posed from higher

levels of governance, while others emanate from within the border region.

2.2.4.4 Obstacles Preventing Institutionalized Cascadia. One of the largest challenges

facing stakeholders attempting to engage directly with their cross border counterparts is a lack of

capacity. The federal governments of Canada and the United States are less invested in addressing

every issue at their border, but they are simultaneously failing to empower subnational stakeholders

financially or politically to fill that void, with the exception of the IJC Watershed Initiative, and

Norman (2009) conducted a study of regional environmental managers in the region, and found the

general sentiment that there was a perceived "downloading of responsibility by the senior

government" (p 108). Lack of financial resources, which are exacerbated by vacillating annual

budgets, serves to curtail adequate staffing and make travel or communication across the border

difficult. Furthermore, while the federal governments have failed to address small- scale cross border environmental issues, who should now assume responsibility at a subnational level is unclear and contested. The result is confusion, duplication of efforts, and fragmentation between multiple levels of government in regard to who should be working on environmental issues. Hale (2011) concurred with this observation, and remarked that the fractured rescaling of responsibility had created a confusing "kaleidoscopic interaction of overlapping and often competing interests inside and outside of governments" (p 30). The greatest challenge seems not to be direct interference or discouragement by federal levels of government, but rather a coolness and disinterest that leaves lower governments incapable and confused at how to approach a shared cross border environmental problem (Norman & Bakker, 2005).

Historically, there has not been such lack of capability or coolness towards subnational cross border integration. The 1994 signing of NAFTA did seem to herald a call for closer integration and the development of more harmonized policy and practices between Canada, the United States, and Mexico (Hale, 2011), but the events of 9/11 changed the promise of open borders, to a border security paradigm that seeks to minimize threats however possible, even at the risk of inhibiting legitimate flows of people.

Nichol (2005) would in part agree with Norman and Bakker that the central governments of Canada and the United States have downloaded a good deal of responsibility to subnational stakeholders in the 2000s; however, this disinterest is selective. While perhaps less interested in the general going-ons at their borders, when it comes to border security, the federal governments are more engaged with controlling the flow of people or goods following the terrorist attacks of 9/11. These restrictive attitudes and increased emphasis on security has created "visible, measurable, irreversible, irreconcilable, and even irascible changes" (Konrad 2010, p 3), creating a border that is harder to cross, more militarized and imposing, and subjects potential border crossers to inconsistently long and unpredictable border waits. Aggressive practices, such as more intensive interrogations at border crossings, discourage potential border crossers. However, security practices

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are not applied consistently or transparently at every crossing, leaving border crossers unsure of what sort of crossing experience they will be subject to, or how long it will take. While the security practices have increasingly made the border more difficult to cross or interact across, they are not the result of massive, sweeping changes but rather incremental and seemingly innocuous changes that compound over time. Konrad (2010) believes that many small, creeping changes have occurred in border security policies and practices. Individually, the changes may be small, but they will compound over time and the outcome will be "major changes and result in the disruption of the border system, and in some instances the breakdown of border processes and border constructs" (p 4).

Ackelson (2009) agrees with Konrad that security practices are making the border thicker and "ever more difficult to traverse both legally and illegally" (p 336). He also sees that the change in border policy has resulted in increased militarization at the border, and that the effect of the border is being pushed out further from the physical border as security regulations such as pre-clearance occur far away from the border. However, unlike Konrad, he sees many of the current obstacles being more of an issue of under capacity or lack of commitment than the security paradigm itself. For instance, while Ackelson does acknowledge that border security practices do contribute to long lines at the border, security practices are hardly the only factor contributing to this problem. In fact, he feels border traffic backup is more directly caused by a lack of funding and capacity to deal with the crossing volume. He also finds that the lack of commitment to implementing smarter border practices, such as "intelligence sharing, joint law enforcement efforts…and strengthened pre-clearance…of goods and individuals" (p 346), have slowed financial processes.

Taking a different tact, Nicol (2005) would agree with Ackelson that both the rhetoric and paradigm of border security as the most important priority has risen as a result of 9/11, but she disagrees that there has been a meaningful impact on day-to-day practices at the border. In particular, she notes that many of the security practices recommended by the 2002 Smart Border Accord already existed in a previous 1995 Shared Border Accord. She believes that while security issues have become a primary concern for border officials, they do not eclipse other issues. Furthermore, Nichol

argues that rather than creating obstacles, the renewed commitment to border security has actually

served as a focal point for border officials from Canada and the United Stated to engage, cooperate,

and work together, creating harmonized policies and practices (Nichol, 2005).

How truly disruptive border security practices can be to cross border stakeholders is unclear.

Unlike Konrad, Alper and Hammond (2011) discovered a more tempered effect of border security

when they conducted a stakeholder analysis of 46 regional and local invested stakeholders on both

sides of the US-Canada border. These stakeholders, who are defined as having a legitimate claim and

influence within the border regime, by in large supported the official security narratives that places

security as the primary border concern and function. The main issue stakeholders had with the

security policies was than the application of said policies, were seen to be inefficient and redundant,

and that the attitude of some individuals enforcing border policy to be unprofessional. They also

found that border security practices would be more effective if they were tailored to fit the specific

needs of the region (Alper & Hammond, 2011). Thus it appears that the policies themselves are not

problematic, but rather a chaotic or inconsistent application of these policies.

At the time of this thesis writing, the prioritization of functions at the border and impact of

border security on crossings may be poised to shift again. In February 4, 2011, US President Barack

Obama and Canadian Prime Minister Steven Harper released a joint statement, the Beyond the

Borders Accord, which acknowledged that previous security policies needed to be reexamined. The

accord called for four major points of emphasis: addressing threats early, facilitating growth of trade

and exchange of labor, integrating law enforcement agencies, and developing cyber infrastructure

tactics (Obama & Harper, 2011). The environment is not included as a focal point in this plan, and

the success in implementing Beyond the Borders remains to be seen, as at the time of this writing

exploratory committees are still determining how these goals should be implemented. However, there

is the potential that border security practices could change, resulting in a new environment for groups

such as the SWA to function. In December 2011, a working plan to implement these goals was

realized. This plan will likely be updated in the fall of 2012, however at the time this thesis was finalized such a plan had not yet been released.

Regardless of the situation and tensions located directly on the border, any sort of formal joint action across the border is made challenging by the basic fact that the two nations have differing political systems, policy development systems, and political ideologies, making direct integration and cooperation difficult. On the surface, the governments of the two nations don't seem to differ too widely. Both the United States and Canada are democratically elected federal systems, with hierarchal governing systems that divides power between a federal government and subnational units (in the US it is states; in Canada provinces), but despite surface similarities there are many differences (Lipset, 1990).

Both Canada and the United States split jurisdiction between their federal governments and the governments of states and provinces. However, which level of government is more empowered with the authority and responsibility to make environmental policy differs. In the United States, far more environmental policy making authority lies with the federal government, while in Canada the provinces have the bulk of power and responsibility in terms of formulating environmental policy (Alper, 2004; Harrison, 2002). Therefore, any state to province coordination is made impossible as they do not have the same amounts of autonomy.

The actual physical structures of the two governments at all levels are also dissimilar. Canada has a parliamentary government in which the executive and legislative branches are fused (at both the federal and provincial levels), while in the United States has separate legislative and executive branches (Norman & Bakker, 2005). The Canadian parliament can make decisions more quickly than their far their congressional counterparts in the United States (Alper, 2004).

Finally the environmental governance regime and accessibility of input for the public into policy have developed are differently on either side of the border. In the United States, public input in political discussion and processes is encouraged and allowed (Alper, 2004), while Canada employs a responsible government method that largely disallows direct public interaction (Malcolmson &

Myers, 2009). Even the regulatory mechanisms the two countries have developed differ significantly. Not only does the bulk of policy making and enforcement occur at different levels of government on either side of the border, but the breadth of scope is also significantly different. The main American environmental agency, the Environmental Protection Agency (EPA), has very narrow and specific mandates, whereas its comparable Canadian counterpart, Environment Canada, has much more latitude to take a holistic approach (Norman & Bakker, 2005).

In addition to jurisdictional differences between the two nations at both the federal and state/provincial levels, both countries are plagued with poor intra-jurisdictional integration among differing government departments. Thus, successful coordination on the same side of the border is often insufficient or problematic (Norman & Bakker, 2005)

Finally, one large hindrance to cross border interaction is the implicit reaction of Canada to avoid any form of integration with the United States in order to maintain sovereignty. As Loucky and Alper (2008) explain, for Canadians, the border serves both a way to delimit Canadian autonomy and territory while also providing a cultural and economic shield from American influence. The resistance to American influence (whether real or perceived) has permeated all the way down to the individuals. Lipset (1990) claims "Canadians have tended to define themselves not in terms of their own national history and traditions but by reference to what they are not: Americans. Canadians are the world's oldest and most continuing un-Americans" (p 53). More recently, Nicol noted that there appears to be two borders, an American and a Canadian. For Canadians, the border's main purpose is to keep America at bay (Nicol, 2005).

Of course, it would be simplistic to portray Canadian identity as just being the antithesis of America. As Widdis (1997) remarks, there are substantial regional differences within Canada. There continue to be large ethnic and economic differences across the country. This is compounded by the fact that the urban development of Canadian cities has resulted in an "island archipelago" with cities of sustainable size being separated by vast swaths of empty land. The results are differing regional

identities that are very distinct from one another. However, even Widdis reiterates that one of the unifying national themes among Canadians is that they imagine themselves as not American.

2.2.5 Social Capital. The situation in Cascadia leaves environmental stakeholders who want to address an environmental problem that is small in geographic extent but still transboundary very few options beyond cooperative governance. Establishing a framework for cooperation in any context is fraught with complications. The theory of social capital is often invoked when looking at coordination between multiple individuals or organizations. What social capital entails, and how its presence indicates the presence of a cooperative environment, is described below.

As Pretty (2003) noted, the presence of social capital facilitates cooperative resource management regimes because it "lowers the transaction costs of working together, it facilitates cooperation" (p 1913). How this is done is disagreed upon, depending on the scholar describing social capital and his or her particular application. The complexity and debates over the central definition of social capital will be explored shortly. The aspects of social capital that seemed most relevant to my research are (1) instigation social ties across jurisdictions and sectors, and (2) sharing norms and expectations in regard to the environment.

2.2.5.1 Emergence of Theory. In order to untangle the principles, debates, and confusion over social capital, a brief discussion about its origins must be covered before the concept itself can discussed. While there is currently no mutually agreed upon definition of social capital, it can be summarized using Adler and Kwon's (2000) definition as "a resource for individual and collective actors by the configuration and content of the network of their more or less durable social relations" (p 93). While vague, this definition clarifies that social capital is not just constituted of networks and linkages between social actors, but also the substance and quality of those linkages and interactions. As Woolcock (2001a) stated "It's not what you know, it's who you know" (p 2).

While numerous voices identified have contributed to the development of the theory of social capital, three are typically attributed as being the originators of social capital: Pierre Bourdieu, James Coleman, and Robert Putnam. Each scholar began exploring social capital in the 1980's and early 1990's. Even during the theory's emergence, social capital was grounded in several diverse disciplines. Bourdieu and Coleman were both sociologists, while Putnam was a political scientist.

Of these three voices, Bourdieu was the first to explore the concept, but his early publications were in French and therefore did not gain widespread attention until he authored *The Forms of Capital* in 1986. In this work, Bourdieu first established the idea of social capital as being distinct from other forms of capital, including financial, physical, and cultural capital. Bourdieu claimed that unlike all the other forms of capital, which can be possessed by individuals, social capital "is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its member with the backing of the collectively-owned capital" (p 248). Thus, Bourdieu asserted that while social capital is dependent on connections among multiple individuals, the benefits that can be derived from being part of a network also provide benefits on an individual basis.

Bourdieu claimed that social capital is similar to other types of capital, such as economic or human, in that it can be converted to different types of capital. Social capital can be converted to

human capital when an individual utilizes their social connections in order to access knowledge and information that they themselves do not possess (Bourdieu, 1986).

Substantial differences do remain between social capital and other forms of capital. Aside from the aforementioned necessity that social capital link multiple agents and is therefore collectively held, social capital will depreciate with disuse or strengthen with usage. As interaction between individuals is repeated, benefits can more easily be derived as trust between individuals will increase. Conversely, lack of interaction will cause trust to wane (Bourdieu, 1986).

Bourdieu notes that social networks are self-regulated. The ease in which benefits can be transmitted throughout a network is dependent on who the members in the social network are and how large the network is. The larger the network, the harder the time individuals will have knowing everyone else, leading to a lack of familiarity, in turn inhibiting the transmission of capital or resources due to lower levels of trust. In order to keep networks from growing exponentially and eventually becoming useless, a figurehead and can serve to regulate the size and membership of a network. This person, or group of people, will allow, or disallow new entries into a social network. In smaller networks, such as a family, this is often one individual, such as a paternal character that monitors the network. However, in larger networks, there may need to be several individuals that work to regulate and enforce control over the network (Bourdieu, 1986).

Coleman (1998) expanded upon Bourdieu's ideas. Coleman, agreeing with Bourdieu's claim that social capital is a collective structure or network that connects individuals, which allows them access to benefits, furthered the theory and claimed, in addition to networks, social capital was also composed of norms of behavior and the expectation of reciprocity. These norms of behavior provide agents of the network with expectations of what to expect when interacting with others, thus creating a system of social obligations, which leads to social control. By enforcing norms of expectations and behaviors, individuals can trust one another, constraining individuals from acting in total self-interest.

Coleman observed that the social structures erected among individuals endure beyond their initial construction, and could furthermore be appropriated for other usages beyond their original

purpose. The example which Coleman uses is that of South Korean students using connections they initially formed for study groups to organize political protests at a later time.

Like Bourdieu, Coleman notes the importance of self-regulation and selectivity in maintaining the effectiveness of social capital and that a hierarchy or figurehead is crucial for this function. Additionally, Coleman claims that "closure" of networks is critical. By closure, everyone in the network must be linked to one another. A network that is closed can enforce norms and sanctions against defection or self-serving behavior as all individuals will be connected and aware of the misbehavior. In a network that is open - that is, a network in which not all individuals are connected or know one another - enforcement of norms and sanctions is far more difficult (Coleman, 1988).

While Coleman and Bourdieu noted the effect and benefits of social capital for individuals, Robert Putnam was the first academic to argue that not just individuals benefit from strong social capital, but that a society with strong stocks of social capital will also be more civically engaged at a societal level, leading to a more cohesive and functional institutional setting. Putnam first explored the socially and politically beneficial role of social capital in his 1993 book *Making Democracy Work: Civic Traditions in Modern Italy*. In this work, Putnam observed the differences in the corruption and effectiveness of political governing institutions in Northern and Southern Italy starting in the 1970's. Southern Italy had rampant levels of corruption and low levels of civic engagement. In contrast, Northern Italy did not have these issues, despite having similar - if not the same- cultures, political structures, traditions, and history as their southern counterparts. The one difference identified by Putnam was a greater level of social cohesion in Northern Italy. Putnam thus concluded that social capital will lead society to have higher levels of trust and communication not only among individuals, but also towards governing political and societal institutions. Thus, social capital benefits not only individuals but society, and more specifically government, as a whole (Putnam, 1993).

2.2.5.2 Dimensions of Social Capital. While the basic tenants of social capital can be simply

describes as a social structure and code of conduct that promotes cooperation and transfers benefits or

other forms of capital from one individual to another, the resulting popularity of the theory was

operationalized and implemented in a wide range of disciplines and situations. The theory of social

capital has become very broad, and often disputed. This thesis could not hope to cover every

disagreement or agreement. However, the facets that seem most relevant to this thesis (1) include

social networks and connections, (2) shared norms of behavior, and (3) shared beliefs and

understandings. As such, the review will focus primarily on these aspects of the theory.

Social Networks and Connections - Putnam (1993) defines social capital as the "norms of reciprocity

and networks of civic engagement" (p 167). According to Putnam, not only is social capital

composed of norms of behavior and expectations of reciprocity, but rests on the very nature of

connections between individuals. Coleman (1988) stated that social capital should not be judged on

what elements it was composed of, but rather by what it manages to accomplish. The common thread

in both these instances of social capital is that it depends on a shared social structure that allows for

interactions to occur among individuals; in other words, membership in a social network.

Differing voices have had different perspectives on which is more beneficial, a strong social

connection or a weak social connection. Granovetter (1973) distinguished between "strong" and

"weak" ties. While there is no hard line for distinguishing between the two types of ties, Granovetter

claimed that the strength of a social tie can be defined by "the amount of time, the emotional

intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (p

1361). In Granovetter's opinion, weaker ties are more effective than stronger ties in building social

capital.

A social network composed of weak ties will be less redundant, and weak ties can serve as a

bridge linking different, unrelated components of a network. With differing, unrelated points in a

social network, new innovative information can enter at a remote point in the network and be

disseminated through looser ties among acquaintances in a way that is not possible when individuals are closely linked in a small network. Not only does this enable individuals to be exposed to a wider amount of information and opportunities, a network of loose connections can also be far larger than many, mutually exclusive tight knit networks. Thus, a greater proportion of society can be linked together, enabling better civic organization (Granovetter, 1973).

In contrast, Coleman (1988) believed that social capital was only effective when ties are strong, and the social network is closed. With a small, strongly tied network, expectations are clear and bad behavior can be easily detected and punished (Coleman, 1988).

Burt (1997) built off the ideas of strong and weak ties, and came to the opinion that the more beneficial sorts of social connections to have depends on one's position within a network. He explored a community of individuals at the management level, and found that for upper management, the ability to build weaker linkages between differing components of the social network was vital in furthering their careers. For the managers, closing these "structural holes" within a network allows managers to serve as conduits, and profit from brokering and controlling the exchange of information that flows through the weak tie they establish.

Gabbay and Zuckerman (1998) concur and further Burt's argument that having a combination of weak ties and strong ties best benefits individuals and wider society when looking at the Research and Development industry. They examined teams of research and development firms. While they replicated Burt's finding of weak ties and bridging structural holes to be an advantageous for upper management, this was not the case for the R&D scientists managers supervise. For them, networks are much denser, and therefore there are few structural holes to bridge. These R&D scientists profit more form having the support of stronger ties. They can share information, and a small community of like-minded scientists is better poised to work together closely, collaborate and innovate in a competitive environment than a lone individual could.

Not only can intensity of social ties vary, but the sort of ties with which individuals are connected varies as well. Woolcock (2001) defines a **bond** as a tie between individuals within the

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same social sphere such as "family members, close friends and neighbors" (p 10). In contrast, a *bridging* connection would be between more distant acquaintances. Essentially, bonds are linkages between individuals in a homogenous group, while a bridge is a connection between individuals in a heterogeneous group (Woolcock, 2001; Woolcock, 2001b).

Finally, a distinction is made between differing statuses. Horizontal linkages are between individuals of the same status, while a vertical linkage is between individuals of asymmetrical status. Putnam (1993) argues that only horizontal linkages can be fruitful. He claims that unlike horizontal linkages, vertical linkages have an inherent power differential that inhibits the creation of trust and reciprocity. Therefore, he claims that government policies cannot implement or promote civil society; this must come from the bottom up. Woolcock (2001b) disputes this, claiming that vertical linkages have a place in strengthening social capital by providing access to ideas, information, and resources not available within a homogeneous community.

Shared Norms of Behavior - While social capital must link individuals, social ties alone cannot assure the growth of trust and form a foundation for cooperation. Social capital is also constituted of particular norms of reciprocity and behavior. While a network may provide the structure of social capital, norms serve to undergird the network, forming a basis that guides how individuals interact and respond to one another. James Coleman said "when a norm exists and is effective, it constitutes a powerful, though sometimes fragile, form of social capital" (Coleman 1988, p S104).

While multiple norms of behavior may emerge from a social network, as Coleman says, not all are effective. Fukuyama (2001) claims that not only are effective norms critical to social capital, but they are in fact social capital, and social networks are the outcome of "an instantiated informal norm that promotes co-operation between two or more individuals" (p 7). If individuals are assured that others will cooperate in good faith and understand why others behave as they do, they will begin to construct a social network, thus constructing a social network capable of transmitting physical and human capital. Putnam (1993) also states that "cooperation is founded on a lively sense of the mutual

participants of such cooperation, not a general ethic of the unity of all men or an organic view of

society" (p 168). Thus norms of cooperation are rather specific and based on their reasonable

expectation that if one does something on the behalf of another, this will be reciprocated at some

point in the future. Norms of behavior and reciprocity that obligate reciprocity between individuals

eventually become stronger and more rigid with each interaction (Fukuyama, 2001).

Portes (1998) claims norms of behavior, enable cooperation by serving to facilitate "the

accumulation of obligations from others according to the norm of reciprocity" (p 7). Like Fukuyama,

Portes acknowledges that not every norm is identical. He further differentiates between

consummatory and instrumental norms. The first describes norms of behavior which are employed

by all individuals with no conscious effort and invoke a sense of obligation or reciprocation of efforts.

This sense of obligation is deeply embedded and engrained into individuals, and does not need to be

articulated or recognized. An instrumental norm is expectations of reciprocity that are explicitly laid

down or manipulated by individuals in the course of their interactions.

Norms of reciprocity, while the most oft cited norm in regard to social capital, are not the

only social norm that can promote cooperation and serve to strengthen social capital. A shared sense

of belonging, residing in shared social conditions and experiences, can lead to empathy and a sense of

solidarity. Thus, with more empathy and understanding, individuals are more willing to engage with

one another, and social capital is thus exercised and strengthened (Portes, 1998; Portes & Landolt,

2000).

Shared Beliefs and Understandings - While networks and norms are the most often cited dimensions

of social capital, the idea of belief systems or institutional systems of rules are sometimes considered

part of social capital as they have an influence on people's behaviors and expectations of reciprocity.

A shared belief system, particularly a religious system, can provide people with shared symbolic

meanings and interpretations of the world, contributing to solidarity and joint identification (Adler &

Kwon, 2000). Institutional rules can shape norms and networks by inhibiting and delineating what is

acceptable and what is not. For instance, Adler cites passage of civil rights legislature as pushing society away from cultural norms that once condoned racism.

2.2.5.4 Trust and Social Capital. There is no consensus on the role of trust in social capital, it is seen as either being a part of or a result of social capital. However, it is clear that the role of trust in cooperation is crucial. Putnam claims that by having strong trust within a society, the need for methods of monitoring or enforcement of contracts or interactions between individuals or institutions is lowered, even if not altogether negated. The greater the stock of trust, the greater the ease of cooperation. In essence "trust lubricates cooperation" (p 171).

Fukuyama (2001), claims that the norms of behavior and social linkages can give rise what he calls a "radius of trust" (p 8), That has an effect on individuals not directly part of a social networks. In what Fukuyama calls a modern society, weak linkages that form connections among disparate and small strong networks can create overlaps in radii of trust, providing an environment conducive to economic growth and development and civic engagement.

2.2.5.3 Habitus. Social action, and the construction of social capital are somewhat constrained by greater physical and cognitive structures. Thus, both the physical and cognitive context in which particular social systems and social capital is situated has an effect on how social capital will emerge.

Bourdieu (1990), explored what he defined as the habitus, a "system of durable, transposable dispositions, structured structures predisposed to function as structuring structures" (p 72). In essence, if a greater, unconscious system of norms and beliefs were deeply embedded in a social structure it would unconsciously inform what seemed to be an appropriate or inappropriate social reaction, thus guiding how individuals interact.

While habitus constrains the actions of individuals in terms of interactions with both the social structure as a whole and other individuals, individuals are not complete prisoners; in fact, it is the collective responses of all individuals that produce and reproduce the habitus with each social interaction. Thus, the collective history of a social group continues to impact future members as it is produced and reproduced, and a collective reality is created. Shared experiences, particularly those early in life, serve to inform the habitus, and inform future potential responses. The role of the habitus is to harmonize actions of individuals within the same network, and enforces a sense of solidarity (Bourdieu, 1990).

Bourdieu primarily described the habitus in abstract terms, unanchored by geographical attachments. The idea of the interplay between internalized social structures and geographic realities effecting social responses was advanced by several humanistic geographers. Gregory (1981) claims that place is socially and collectively understood subjectively. While space may exist in a concrete reality, collective agreement creates understanding and creates spatial bounds for place, collectively establishing and reestablishing the place in which social life is situated.

Thus, place is a complicit actor in the recursive process; individuals both contribute to creating social structures but are also impacted and constrained by these structures. As Gregory states "in the reproduction of social life (through systems of interaction) actors routinely draw upon interpretative schemes, resources and norms which are made available by existing structures" (p 8). When looking at the social environment SWA created, it is important to examine not only the social ties and presence of shared norms and understandings in regard to environmental quality, but also to determine if there is a shared sense of belonging to place, that is, a shared belonging to Boundary Bay.

2.2.5.5 Potential Negative Effects of Social Capital. While social capital in general, and the positive effects of social capital - such as greater civic engagement, social mobility, and the ability to

gain other forms of capital - are discussed at length, potential drawbacks are rarely discussed.

Despite the general lack of discussion, it does appear that in some configurations and contexts, the

presence of social capital can have negative consequences for individuals or the larger society. These

could include social networks that become overly strong, inhibiting social mobility, or norms of

behavior that create toxic effects of society as a whole (Adler & Kwon, 2000; Portes, 1998; Portes &

Landolt, 2000). However, for the purposes of this research, these do not seem to be directly relevant.

       2.2.6 Ability of Networks to Govern. The crux of this thesis rests on the ability of forums

such as the Shared Waters Alliance to actually govern or effect change. Messner (1997) exhaustively

laid the theoretical groundwork to establish that cooperative informal networks can and sometimes do

supplement or act in the stead of formal public government. While Messner lays out a comprehensive

and altogether optimistic view of network governing mechanisms abilities, he acknowledges multiple

potential points of failure, both created by both dynamics internal to the network, and causes external

to the network.

       While Messner describes at length the character and quality of network governing

mechanisms, his description is similar enough to networks discussed under the umbrella of social

capital (informal, a mix of sectors, horizontal and vertical linkages) that his arguments will not be

reviewed here. Instead, I will focus on how networks operate within a tradition of hierarchal

governments, what tools they utilize, and finally, the potential pitfalls for these mechanisms.

       Not only does Messner argue that networks can govern, but given the current complexity

brought on by economic and political globalization, he also claims they are an indispensable

component of policy making and implementation (Perkmann, 1999). Traditional government systems

are being faced with three insurmountable challenges, namely: "complexity, lack of motivation…and

blockades due to powerful interests" (Messner 1997, p 621). By utilizing "soft" governance tools

such as cooperation, negotiation, and mediation, networks can circumvent these challenges.

Cooperation, negotiation, and mediation are somewhat nebulous descriptors of how networks can actually influence policy. Messner charts how networks foster simultaneous cooperation and competition in order to affect the policy process through multiple stages. In the first stage, networks facilitate problem identification and assessment by bringing together knowledge from a variety of different sources. This unburdens a limited state government from having to accomplish prolific knowledge building. After facilitating information gathering and knowledge generation, networks can serve as a forum to develop "common solution-oriented strategies to be developed on the basis of a problem analysis accepted by all parties" (p 301). Progressing on from defining a mutually agreeable solution to a collective problem, networks can have a role in defining policies and regulations to put those solutions into action. Messner does note that this is rarely done completely within the realm of the network, and there must be some exchange between the network and the state institutions with the "hard forms of governance" (p 304) that can formalize the defined policies. There is the potential however, that actors within the network, such as private actors, will willingly take on agreed upon measures without the means of regulation or legislation. Networks can also work in tandem with state institutions to implement policies. Messner provides the example of unions or industries providing oversight and on-going monitoring of the implementation process. Finally, networks can continue their previously mentioned capabilities as the policy process reiterates and implemented policy is reviewed, evaluated, and potentially altered and improved.

While Messner paints a positive view of networks role in the policy process, he acknowledges multiple potential stumbling blocks that could befall networks or cause them to fail to meet their potential. Messner distilled the causes for these failures into five primary causes. For purposes of brevity, these will not be discussed in much detail, but will be presented with minimal explanation here:

- Decision Making Blockages – Size differences or unequal distribution of power throughout the network can lead to impasses in regard to decisions or compromise.
- Overly conservative and sub-optimal compromises – The need for unanimous agreement can result in sub-optimal solutions that will not be effective.
- Relationships that are either too strong or too weak – Networks can potentially be either too weak to be effective, or too strong, reducing ability to innovate.
- Conflict Resolution - Conflicts over the distribution of decision making abilities, or conflicts over how outputs should be distributed back throughout the network.
- Negative Costs - Networks will externalize, both intentionally and unintentionally, the costs and negative aspects of their efforts onto those not part of the network.

One aspect that Messner does not explore is that of external pressures causing network failures, such as a disinterest of state institutions in partnering or listening to networks, or of other financial or technical challenges that may plague the environment in which the networks operate.

3.0 RESEARCH FRAMEWORK

A mixed method was used to investigate my research subject. A mixed method combines qualitative and quantitative methods; in my research specifically this meant semi-structured interviews followed by a quantitative survey that aimed to measure attitudes of participants. Data was first collected through 7 semi structured interviews (two were conducted simultaneously), which was then used develop a quantitative survey. There were several reasons for choosing to combine two different methodological approaches. First, the results of the interviews were used to inform and develop the survey. Second, using two very different modes of inquiry can potentially enhance the reliability of data by providing data triangulation, or in a sense learning the same thing two different ways.

As my inquiry focused on one specific case rather than on more general interactions among environmental managers throughout the region, it should not be assumed that my findings can necessarily be extrapolated to the general tone of cross border cooperation and issues across the entire border, or even within Cascadia. Rather the goal of my research is to produce a case study to explore, describe, and understand the perceptions of trust, shared concerns and goals within one specific group and location. While any understanding generated by this research is highly specific to the Shared Waters Alliance, my findings may provide empirical evidence that could be used to augment current hypotheses and knowledge about cross border cooperation. Furthermore, by having a fully detailed analysis of the strengths, weakness, and options associated with one cross border working group, the knowledge illuminated here could potentially be used as a model or be used as a roadmap by other individuals looking to work across the border to solve a shared environmental concern.

3.1 Mixed Methodological Approach

In and of itself, "mixed methodology" is a fairly vague descriptor, and can be carried out in any number of ways. At the elementary level, it is a research design that combines one or more

quantitative data collection methods with one or more qualitative methods. There are multiple

benefits that can occur from combining two very different data collection methods. For my specific

purposes, I utilized a mixed methodology in order to obtain data triangulation, to complement and

compensate for the respective weaknesses of interviews and survey research, and most importantly, to

use the qualitative analysis results from my opened ended interviews to develop a more structured and

deductive survey.

Using a combination of qualitative and quantitative inquiry in order to examine social capital

or the dynamics between cross border stakeholders has previously been utilized by Konrad (2010).

Konrad first interviewed an equal portion of Canadian and American border stakeholders, for an n of

98. From the analysis of these interviews, he then developed a survey that assessed stakeholder

attitudes along a five point scale (Strongly Agree to Strongly Disagree). This was administered to

160 respondents through email. Konrad sought to understand what the perceptions of border

stakeholders were in regard to border security practices, and how these practices were contributing to

breakdowns in social relationships along the border. Similarly, while not using the exact same

methods, Salazar and Alper (2005) also used a research design that utilized two different data

collection methods when investigating whether the cognitive boundaries held by environmental

activists located within the Pacific Northwest border areas matched political boundaries. Rather than

use a quantitative perception-based survey, they conducted a discourse analysis of popular media and

NGO websites. They also used semi-structured interviews to speak with 27 environmentalists who

were engaged with issues at or near the border.

Pairing semi-structured interviews with surveys that had been based on results from the initial

phase of data collection allowed for the deep exploration of both the constructed social meaning and

functioning of the SWA while also obtaining a generalized picture of dynamics within the group

(Hesse-Biber & Leavy, 2011). However, the mixed method approach does come with drawbacks,

and necessitates additional attention to data collection and analysis in order to ensure that the data

obtained is reliable and valid. While the protocols for assuring reliability and validity will be

discussed in depth for each respective method further on, it does need to be said that just because mixed method provides several different avenues for investigating questions, it is critical that researchers do not become complacent. Rigorous attention to the respective protocols for each method will help assure as best as possible valid data. A convergence of results does not assure validity (Gray, 2009).

3.2 Qualitative Data Collection and Analysis

Qualitative research refers to a broad and inclusive inquiry paradigm that seeks to engage the researcher and gain insight into their research subjects. It is less concerned with making broad generalizations about the study population or determining an objective social reality (Gray, 2009). Qualitative research seeks to investigate social experiences or phenomena for one of three purposes: to deeply explore, describe, and/or explain the phenomena being studied as opposed to making general statements about the study population that is possible with quantitative methods. Of these three, my aim when conducting semi-structured interviews is to explore and to "investigate an under-researched aspect of social life" (Hesse-Biber & Leavy 2011, p 10) while also to "richly describe an aspect" (p 10) of a participant's experience with SWA. Qualitative research can be couched in numerous different paradigms: post-positivist, interpretive, or critical (Hesse-Biber & Leavy, 2011). Of these, I will posit my qualitative research within the post-positivist strand. This paradigm makes the assumption that there is one collective social reality; however, qualitative research can probe more deeply into this shared reality than quantitative means (Gray, 2009).

The use of qualitative research methods to investigate social capital has become increasingly common. Historically, social capital has been researched by using quantitative methods such as attitudinal surveys or network analysis, but research inquiries are becoming increasingly diversified. Devine and Roberts (2003) stated that pairing traditional quantitative methods with qualitative data collection methods such as interviews allows for relationships and patterns between underlying

variables or forces to be discovered and articulated, and then by use of quantitative and statistical analysis, more concrete measures of the strength of these relationships can be described.

The ability of qualitative research to probe deeply into social life does not come without issues in assuring the reliability and validity of data. Data can be internally invalid if a researcher allows his or her personal opinions or assumptions bias the data interpretation. Qualitative analysis is also vulnerable to failing to be externally valid, that is, researchers will generalize their findings beyond the initial population or circumstance being examined. (Gray, 2009). In order to ensure internal and external validity, I was careful to reflexively examine and note my own particular perceptions and biases immediately following each interview. As I was building my narrative of interviews, I took special care not to disregard concepts or cases that seemed to oppose the dominate themes that were emerging from my interviews. Upon encountering evidence that seemed to oppose patterns or themes, I sought to modify or reexamine my interpretations to account for such differences. Through my coding process, which will be discussed shortly, I repeatedly revised or altered codes that no longer sufficiently represented the information coming out of my interviews.

I also took the opportunity to share my research with other individuals conducting work involving cross border interactions by presenting my research at the Association of Borderlands Annual Meeting on April 14, 2012.

The qualitative method I choose to use was a semi-structured interview. Like an interview of any formality, this data collection tool serves as a way to probe for patterns and themes, and provides "thick description" (Hesse-Biber & Leavy 2011, p 95). The interview was designed to be semi-structured, meaning I had developed an interview guide with specific topics I wished to discuss, but the respondent was allowed to drive the flow of the conversation and focus on issues which they found to be most relevant and important. Allowing for a more conversational tone, made it possible for the interview to divert into tangents, revealing topics I as the researcher was previously unaware of (Hesse-Biber & Leavy, 2011). I sought to keep the questions as open as possible, and not lead respondents to discuss any of my preconceived notions about the group or challenges posed at the

border. My decision to use a semi-structured interview format was heavily influenced by a study conducted by Svenden (2006). He sought to examine the cleavage of social capital between long-time residents and newcomers in a small Danish community where he conducted several dozen interviews split between these two populations. What is relevant about Svenden's work are not his findings or study population, but how he went about obtaining qualitative information. Svenden had constructed an interview guide, but did not adhere to it strictly. Rather, he attempted to conduct the interviews more as conversations, allowing respondents to focus on what was most important to them and steer the flow of the interview. If not all topics on his interview guide were addressed during the course of the conversation, he would ask them at the end.

The questions I decided upon for my interview guide were crafted in order to gain a sense of the respondents' perceptions in regard to several dimensions of social capital, including trust and familiarity, presence of networks ties and intensity, and norms of understanding. I also sought to determine if respondents felt an affinity or sense of belonging to a cross border ecological region ecological region. A copy of this interview guide can be found Appendix I.

3.2.1 Semi-Structured Interview Implementation. A contact list was provided by the chair of SWA at the time, Jim Armstrong. As no formal membership list was kept for the group, he provided me with the email list that was used to notify people of upcoming meetings. A mass email asking for willing interview participants was sent to the entire contact list on January 21, 2012. It was predetermined that three Americans and three Canadians should be interviewed. As individuals responded to me, interviews were booked until I had booked enough individuals to meet my predetermined quotas. I found that I was still lacking enough American respondents after the initial email, so I solicited additional Americans respondents by calling them directly and asking if they were willing to be interviewed.

After submitting a Human Subject Review Board (HRB) Exemption and getting approval from the HRB, the first interview was conducted on January 24, 2012. The results from this

interview revealed that my first interview guide was too rigid to accommodate participants who had been involved with the SWA on only one or two occasions. The interview guide was revised, and pilot tested on an individual who, while not member of SWA, had been involved with an informal working group, to determine if the revised interview guide was sufficiently answerable to a wider range of participants.

The backgrounds of the final interview respondents were fairly diverse, and I was able to speak to at least one individual from each nation, sector, and level of government. The full breakdown can be seen in Table 3.1.

Table 3.1. **Summary of Interviewee Backgrounds**

		Sector of Employment				Level of Government			Total
		Government	Academic	Non-profit	Private	Local	State/ Provincial	Fed.	
Nationality	Canadian	1	1	2	-	-	1	-	4
	American	2	-	-	1	1	-	1	3
Total		3	1	2	1	1	1	1	7

The intensity of involvement also reflected a wide continuum. Two respondents were indirect participants, meaning these individuals had done work at the behest of a regular participant or were regular observers of the group, but these individuals had yet to participate directly themselves. One respondent had been to two meetings spread over multiple years. One respondent had been involved with SWA for about two years. One respondent had been regularly involved in SWA and functions for five years. Finally, one respondent had been involved since the group's founding in 1999. Admittedly, not every perspective was represented; most notably, I was unable to secure any interviews with First Nation or Tribal respondents.

The interviews were conducted over the course of a month, with the initial one conducted on January 24, 2012, and the final being on February 22nd, 2012. The duration of the interviews varied

from just over 15 minutes to about 35 minutes. All interviews were conducted in person at a place of the respondents choosing. All interviews were audio recorded.

3.2.2 Semi-Structured Interview Analysis. Each interview was recorded, and afterwards, the audio was transcribed manually. The transcript was then read through at least twice before analysis began. Analysis was achieved through an iterative and inductive coding process. The decision to take such an approach was informed by the work of Alper and Hammond (2011). In order to understand how border stakeholders perceived the benefits and obstructions caused by border security management practices, they conducted survey interviews of 46 cross border stakeholders. The survey was broken down by key border security functions such as screening, inspection, regulation, interdiction, and surveillance activities, and parsed into 14 specific questions. Post analysis was accomplished by coding and manual searching for patterns and themes.

When analyzing my own interviews, I went through each line of the transcript and assigned a code, or explanation of the meaning. This code was inductively generated. An abbreviation of the given code was embedded directly into the transcripts, along with a brief and specific explanation of why the given code was chosen. Simultaneously, a separate document was created that contained the abbreviations for all codes along with a general definition of each code. As each transcript was evaluated, the codebook was continually updated as new codes were identified. After the final interview had been coded and the codebook completed, a final review of the each coded transcript was carried out to reconfirm all of the categorizations given. If codes or patterns emerged later in the analysis, codes given earlier in the process were reviewed, and potentially recategorized to the later, more comprehensive codes. The final codebook is attached in Appendix II.

After the initial coding process, the evidence supporting each individual code was extracted from the interviews and placed together in individual documents. This allowed for all information across interviews given the same code to be directly compared. Once all the supporting evidence for each code had been aggregated, memos, or written explanations were created. This allowed for the

patterns each code represented to be articulated and examined. It also caused me to look for information that directly contradicted the patterns described, and to determine how it fit into the overall picture.

This was the extent of my qualitative analysis. However, many of the themes and patterns that were discovered and articulated through the qualitative analysis were directly used to determine what sorts of questions needed to be asked in the second phase of my research. For instance, the interviewees were asked a very open question about the major challenges. Their responses were then used to develop ten closed statements in which survey respondents were asked to either agree or disagree with on a five point ascending Likert scale.

3.3 Quantitative Research

Survey research that probes the perceptions and attitudes of a particular population has been frequently used both when examining the cognitive and practical state of Cascadia, as well as when assessing stocks of social capital. For example, in a study that sought to determine if there were definable transborder environmental management regions, Deborah Vanjitinan (2009) used surveys of environmental managers located at the state or provincial level, probing where geographically the greatest levels of interaction where concentrated, and what issues or opportunities were spurring such linkages.

Abel et al (2011) utilized several surveys in their research in which the overarching goal was to determine if a Cascadia as an ecological cross border region existed, and if environmental policy was diverting or converging around this cognitive sense of region. The first survey they implemented was used to quantify how strongly American and Canadian university students identified with several different conceptions of Cascadia. In a separate portion of this report, they used another quantitative survey to determine on a five point scale how strongly Canadian and American stakeholder perceptions matched in regard to wildlife conservation practices on the ground.

Survey data is also a common tool used to measure and observe stocks of social capital. One of the most standard tools used to measures and explore social capital is the standardized World Values Survey (WVS). The WVS is an ongoing international project survey project that captures data in regard to values, behavior, self-descriptions, and other aspects of human culture. Putnam (1995) used the WVS to explore declining levels of social capital in the United States.

The WVS isn't the only ready-made tool used to investigate social capital. A tool called the Social Capital Assessment Tool (SCAT) has also been developed in an attempt to monitor changes in social capital in a community over time. This tool combines qualitative methods with quantitative survey data in order to establish social capital baselines and then monitor changes over time. The survey component of this tool is split into five sections: Individual Characteristics, Household Characteristics, Genogram, Structural social capital (density of networks and support organizations, amount of social exclusion), and Cognitive Social Capital (trust, solidarity, reciprocity and cooperation) (Krishna & Shrader, 1999).

3.3.1 Development of Perception Survey. My survey was concentrated on four distinct but related themes that sought to determine if there was a singular perception of the group, or if there were multiple conflicting opinions among SWA participants. The survey was broken into sections as follows:

- Perceptions of the Group's Functions – Assumptions about group's functions before and after becoming involved with the SWA.
- Cooperative Atmosphere – Questions pertaining to the amount of interaction among stakeholders, the presence of trust, agreement in regard to environmental understandings and values, and the presence of a shared sense of belonging to a transborder region.
- Challenges for the Group.
- Suggestions for the Future.

When looking for potential differences in perceptions, I compared the responses of three potential sub-groups: by nationality (differences between Canadian and American responses), sector

(differences between those from government agencies and those from non-government organizations), and level of government and proximity to Boundary Bay (differences between local government officials and state/provincial and federal government officials). In order to indicate their perceptions, respondents were presented with a number of statements which they were then asked to agree or disagree with on a scale of 1 to 5. Depending on which statement was being evaluated, the exact meaning of one to five changed, although generally one indicates disagreement or a negative response with five indicating agreement or a positive response. If the group was a generally functional and conducive to cooperation, it would be expected that there would be little difference or disagreement in perceptions. The survey is attached in Appendix III.

Developing the sections of the survey that refer to the challenges the group faces or suggestions for the future were fairly straightforward. Themes that had emerged from qualitative analysis were formulated into statements, and respondents were then asked to either agree or disagree with on an ascending Likert scale of 1 to 5. However, the section referring to the amount of cognitive and structural social capital within the group took a great deal of time and care to determine appropriate questions that could represent the various dimensions of social capital. I began by determining how to operationalize the dimensions of social capital that I had identified in my literature review. I then considered what indicators could be used to establish the presence of each of those dimensions.

After determining which questions needed to be asked, I turned my attention to ensuring these questions would not only be clear, but also reliable and valid. According to Fowler (1988), reliability is both the ability of individuals to correctly understand what sort of a response a question is seeking, and for all respondents to come to the same understanding. Greater reliability in surveys can be accomplished by using language that is common usage by the widest range of people as possible. Validity on the other hand is the ability of a question to accurately measure what it is intended to measure. It is possible to write reliable questions that all respondents interpret the same,

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but still fail to answer the researcher's intended question. In social surveys, there are conditions that can create issues in obtaining valid responses. These include:

- Respondent does not know or have the information.
- Respondent has the information but cannot recall it.
- Respondent does not understand the question.
- Respondent knows and recalls the answer, but due to social stigma does want to give their true response (Fowler, 1988).

With these potential pitfalls in mind, I sought to write questions that allowed respondents who were unable to give a response a way to signify their lack of ability to answer. I also attempted to ask respondents multiple questions on the same theme in order jog their memories and improve recall. I designed a questionnaire that would ensure anonymity, and finally I went through multiple drafts and reviews to ensure my questions were clear and succinct.

Babbie (2004) gave a few more guidelines to improve reliability and validity in surveys. These include avoiding double barreled questions (questions that ask respondents to simultaneously evaluate two different ideas), keeping questions as short as possible, avoiding the use of negative terms, and being mindful of personal assumptions in order to keep biases out of question wording.

My survey primarily used Likert, ordinal level measures of data. As Fowler explains, this level of measurement is when "people or events are ordered or placed in ordered categories along a single dimension ('How would you rate your health very good, good, fair, or poor?')" (p 85). A minority of the questions were nominal measures, particularly those asking respondents about their background information such as nationality or sector of employment. However, for the majority of the questions in which respondents were asked to disagree or agree with a statement, they were asked to evaluate the opinion along a five point scale. However, as the level of agreement can vary in intensity from person to person, there was no way I could establish clear intervals. Thus, the majority of questions were based on an ordinal level of measurement. In order to not lead the respondent to a more positive or negative response, a symmetrical five point scale was used with equal number of

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positive and negative responses (1 - Disagree, 2 - Somewhat Disagree, 3 - Neither Disagree or Agree, 4 - Somewhat Agree, 5 - Agree), with the option of Unable to Answer.

While it is important to focus on the mechanics and clarity of individual questions, it is also essential to consider the overall structure of the questionnaire in order to get the most reliable, valid responses, and to ensure a decent response rate. Everything from the order of questions to the visual layout of the questionnaire can affect response rate. Dillman and Salant (1994) recommend starting surveys with simple, closed, and unobtrusive questions. Asking a question that requires a great deal of effort to recall and answer, or that asks for particularly personal information can dissuade respondents from becoming further invested in the survey. Starting with a simple and neutral question can slowly build trust with the respondent. After the first few questions, they recommend asking questions in the terms of highest priority to the researcher. Thus, if a respondent ends the survey prematurely, they will still have completed the most pertinent questions.

A lack of attention to visual lay-out can result in poor response rates. A cluttered or busy page can overwhelm, confuse, or dissuade respondents from answering. Dillman and Salant recommend choosing an uncluttered format that has as few lines or extraneous visual features as possible. They also recommended that a format with a vertical flow is preferable. Calling out the questions by using highlights or bolded text is also encouraged. As I was using a survey web service that had preprogrammed forms, my freedom to design my survey layout was somewhat limited. Nonetheless, I tried to pick the simplest, most obvious question formats for each question, and broke the number of questions per page to a small number so the respondent wouldn't be forced to do much scrolling down the page. The final component of survey layout that Dillman and Salant emphasize is to create surveys that are easy to understand and have clear directions that help the respondent understand what sorts of responses are desired. This is accomplished by providing succinct but clear and frequent instructions that explain what sort of response is expected for each question, and general explanations and transitions describing what each section of the survey is hoping to ask. The less figuring out the respondent has to do, the better.

Before implementing the survey to the study population, I conducted several pilot tests to get feedback on the efficacy of my survey. A pilot test can be used to evaluate every aspect of the survey, including the clarity of questions, their accuracy and precision, the visual clarity of the form, and the ability of the respondent to understand and properly intuit how they are expected to answer. Given the small size of my sample population, I did not want to conduct pilot tests on sub groups of these populations. I instead found another group that was somewhat similar in structure (informal membership that included a group of participants with diverse backgrounds), the Huxley Graduate Research Working Group. I modified some of the questions to make sense to this particular group, but otherwise kept the form identical to how I planned to present it to SWA. This pilot test resulted in feedback regarding the clarity and ease of understanding the survey's instructions, any misperceptions, and provided a benchmark in how long it takes to complete the survey. After using these comments to revise the form, one final pre-test was conducted. Again, I chose not to administer a pilot test directly to a smaller sample of SWA members, and instead created a slightly modified version for a member of an informal professional group, the Cascadia Open Source GIS User Group.

Before I was able to administer my finalized survey directly to my survey population, I had to gain the approval of the Human Subject Review Board.

3.3.2 Implementation of Survey. In order to get the best response rate, Dillman and Salant recommend using multiple personalized modes of contact that varies slightly in message and in medium. In the 1994 edition of this work letters, postcards, and phone calls spaced about a week apart are recommended. However, this protocol was for a mail survey implementation, and as I choose to use a web-based survey tool, the best protocol for contacting potential respondents is still debated.

Various concerns with web implementation exist separate from concerns over more traditional implementation methods such as mail or telephone. The ability to reach the sample population is somewhat of a concern. Couper (2000) noted that web-based surveys present several

unique issues that could affect response rates or result in coverage or measurement errors: a lack of accessibility to the internet, technical issues, or concerns over confidentiality. Some of Couper's concerns seem not to apply to my study. For example I have a working email for everyone in the sample, and thus accessibility to the internet is not a concern. However, technical issues or concerns over privacy could still be problematic. In an effort to mitigate these concerns, I selected a well-known program survey software program, SurveyMonkey. This program has a respected reputation for establishing privacy controls and has been engineered to work in most common browsers. In an additional effort to ensure confidentiality while still being able to track who had and had not responded, I assigned every respondent a "personal access code." This was a randomly generated five-digit number. In order to start the survey, each respondent had to input this number. By comparing which numbers had been inputted, I was able to determine who had taken the survey without requiring respondents to put identifying information directly into the survey.

Even in populations with easy access to the internet, filters can send emails to junk mail, or they can quickly become forgotten as inboxes fill up, resulting in a lower response rate than more traditional implementation methods. Kaplowitz et al (2004) conducted a study to determine which of five contact methodologies would get the highest response rate to web surveys. The study compared the response rates of five differing contact treatments. These treatments were all comprised of some mix of email and regular mail reminders. The study was conducted on University of Michigan undergraduates, a population with a high access to the internet. The study found that there was not a significant difference in response rates between the protocols that combined mail and email contacts. However, they did find that mailing a pre-notice before emailing the survey to respondents appeared to result in an increased response rates (Kaplowitz, 2004).

With those concerns in mind, I continued to use Dillman et al's (2009) basic protocol, albeit somewhat tailored for a web rather than mail implementation. Dillman himself in his updated version continues to suggest a similar contact protocol, albeit with less time between survey reminders. As with a mail survey, Dillman suggests making multiple contacts that vary in length and message. The

differences between mail contacts would be that emails should be somewhat shorter than letters, and the time periods between contacts should not exceed more than a week. Dillman suggests considering the time of day when sending emails. Specifically, at the beginning of the day people tend to have more time to notice and respond to a survey. I used the following communication protocol to reach my survey population:

- First Contact: On April 30th, a long email was sent to the entire contact list. This email explained my project, explained why each respondent was had been contacted, and provided my contact information. The email included a hyperlink to the survey and a personal access code for each individual.
- Second Contact: On May 7th, a postcard was send through regular mail to all respondents who had not responded to the first contact. The postcard had a very brief description of the project, the web address for the survey, and each individual's personal access code.
- Third Contact: On May 10th, another email was sent to all respondents who had not yet completed the survey. The language in this email varied and was slightly shorter than the first, but it contained the same basic information.
- Fourth Contact: On May 17th, a final email was sent to all respondents who had not yet completed the survey. Again, the message of this email includes the same basic information: the purpose of the study, how to access the survey, and my personal contact information. However, special emphasis was made to communicate the importance of the respondent taking the survey. A copy of all of these contacts can be found in Appendix IV.

3.3.3 Survey Analysis Procedure. A total of 27 individuals responded to the survey before data collection was closed on May 25, 2012. Out of a contact list of 39 individuals, there was a response rate of 69%. In post analysis, data was compared on the basis of the entire group's response, but also sought to determine if differences existed between differing nationalities, differing sectors of employment, and within government sector respondents, the level of governance. Thus, responses of Canadians and Americans, Government and Non-government respondents, and local and regional/federal levels of government sub-populations were compared respectively. The breakdown by sub-population is presented below in Table 3.2:

Table 3.2. **Summary of Survey Respondent Backgrounds**

	Nationality		Sector of Employment		Level of Government		Total
	Canadian	American	Government	Non-Government	Local	Regional/Federal	
Total	23	4	17	10	7	9	27

In order to reach these sub-populations, several categories were collapsed. For instance, the non-government sector is comprised non-profit, private and university respondents as there was only one respondent from the each of the two latter categories. Additionally, the state/provincial and federal government labels were collapsed into a category herefore called "regional/federal" government.

The overarching research goals of my analysis were to determine if there was a singular opinion of the SWA on along various dimensions. In order to determine if this was the case, the responses of the sub-populations (Nationality, Employment Sector, and Level of Government) for the same variables were compared. If it was determined that responses for the same variable was viewed the same by all categories of respondents, this would lend support to the main hypothesis that the SWA has been successful in creating a fully formed forum for cooperative governance in which there is a shared and complete understanding of the group's purpose, challenges, and vision for the future.

In addition to seeking to determine if discrepancies in opinions existed, comparisons between the magnitude of responses to multiple questions were made. Comparing the responses across variables could establish which variables were seen as more critical than others, or if every variable was considered with the same seriousness. Thus, what are considered the most important functions of the group could be determined, what the most serious challenges for the group are, and finally, if some suggestions for future improvements are more appealing than others.

Several non-parametric tests were used to conduct the analysis, namely several variations of Mann-Whitney-Wilcoxon U tests. Hierarchal cluster analysis was also used to help compress the data and determine if relationships between certain responses and certain questions existed. The decision to use non-parametric tests over more traditional tests such as ANOVAs or T-tests was driven by several considerations. Firstly, these tests are more permissive in regard to the validity criteria that must be met. They also allow for non-normal distributions as well as small sample sizes to be tested for significance, something that parametric tests cannot do. Ordinal and nominal levels of data can be

tested, whereas in order to use parametric test all data must be interval. This allowance is critical to my needs as my survey questions were entirely restricted to ordinal data levels (Gibbons, 1993). Finally, and perhaps most critically, these tests are better equipped to deal with small sample sizes (Taylor 1983). For all tests, I selected a p-value of .1. This rather liberal cut-off for significance was chosen to counteract the effects of a small sample size, and the exploratory nature of my research. Because of the small sample size, there is a greater chance of rejecting differences, making the more traditional p-value of .05 too limiting (Dietz & Kalof, 2009).

The first round of analysis sought to compare responses of sub-groups to one another in regard to the same question. To accomplish this, Mann-Whitney-Wilcoxon Independent Sample tests were used.   This test determines if there is a significant difference between "central tendency of two independent random samples" (p. 30), that is, the same question answered by two different groups. This test is conducted by pooling the responses of two different response groups into an array, and then ranking them from the greatest to smallest result. The ranks are then summed, and the following equation conducted. The null hypothesis for all tests was that there would be no significant difference between the responses of these two sub-population groups. Thus, if a p-value of .1 or lower was returned, this would indicate that the two groups were responding differently to the question being tested, and therefore had fundamentally differing opinions (Gibbons, 1993). This was done three times for every question, once to compare the perceptions of Americans to Canadians, once to compare the perceptions of non-government to government respondents, and finally once to compare the perceptions of local government to state, provincial, or federal respondents.

In order to compare the magnitude of responses to different questions by individuals from the same sub-group, I first needed to simplify and consolidate the data in each respective dimension of analysis (cooperative environment, presumed function of the group, challenges, and opinions for the future). On a number of the questions, hierarchal clustering was used to determine if relationships, and more specifically patterns, among numerous variables exist.

After identifying clusters of responses that appeared to be related, I then sought to determine if these groups of questions were ranked the same, or if there was some sort of difference in responses among them. In order to compare the responses of variables to each other, two different nonparametric measures were utilized. In cases where the responses to just two questions needed to be compared, (for instance when comparing the level of interaction with stakeholders before joining the group to the levels of interaction after joining the group), I was able to use a Wilcoxon Signed Rank Test. However, in order to determine if there were differences in the responses to three of more questions, I had to use another non-parametric measure was used, Friedman's test. These comparative tests were run on the responses of the group as a whole, but also when looking at the responses of each individual sub-population: Canadians, Americans, Government, Non-government, Local Government, and Higher Level Government.

The Wilcoxon-Signed Rank, a matched pair test, compares the median responses to each question as well as the magnitude of deviation from those medians. The test accomplishes this by subtracting the response of every individual's response to the second question from the first. All the differences are ranked and noted as either positive or negative, then converted to absolute value. All positive values are summed together, as are all negative values. The final output is a p value. The null hypothesis for all Wilcoxon Signed Rank Test conducted is that there will be no significant difference between the responses to the two questions being compared. To put it plainly, the null hypothesis is that individuals feel the same to the two questions becoming compared. If a p-value is below .1, the null hypothesis will be rejected and it can be assumed that individuals are responding more differently to the two questions being examined (Gibbons, 1993).

Freidman's test compares the median overall rating for the instances in which the responses to three or more questions are being analyzed. Like the derivatives of Mann-Whitney-Wilcoxon tests, this test relies on ranking each attribute separately, then summing the ranks. Because this test can include more than two variables, it was used for the clusters identified in factor analysis (Gibbons, 1993).

For all tests, two-tailed significance was used. All null hypotheses sought to test if differences between two groups of respondents existed. Because the direction of the differences did not matter (the null would be rejected in a difference in means existed in either direction), making a two-tailed significance appropriate (Dietz & Kalof, 2009).

4.0 RESEARCH RESULTS AND DISCUSSION

As noted earlier, the goal of this thesis is to explore whether or not social capital has developed in the region of Cascadia, and if so, is that social capital capable of bridging divides created not just by the international border but also borders created by sector of employment and or geographic proximity to the area of concern. Specifically, I am probing just one group attempting to bring together stakeholders invested in Boundary Bay, the Shared Waters Alliance, to explore cross border social capital. Of course, it must be stated that there is an explicit assumption that development of social capital will set the stage better management of shared resources. Whether or not this is ultimately true is beyond the scope of this thesis; however there has been previous evidence supporting this hypothesis (Dietz et al, 2003; Messner, 1997; Ostrom, 2000; Pretty, 2003).

The problem with investigating the development of social capital is that there is no way to measure it directly. Thus, I developed a questionnaire that sought to determine if there were secondary indicators present. These indicators would imply the presence of structural and cognitive aspects of social capital. The survey in its entirety can be found in Appendix III.

If the survey demonstrated that there was a common understanding and consensus of how the stakeholders within the SWA relate to one another, a common understanding of the challenges the SWA faces, and a common agreement with proposed changes and improvements for the SWA, then it could be inferred that social capital is present. Because there is a need to bridge several different types of borders (national, employment sector, and geographic proximity or government scale), the responses of several different sub-groups were compared to one another in order to determine if they had the same perceptions. These sub-groups were Canadians vs. Americans, Government vs. Non-government, and Local Government vs. Regional/Federal Government. These sub-groups were not chosen arbitrarily. The literature reviewed does indicate that these groups potentially could have different experiences and backgrounds leading to different perceptions. For instance, Canadian and American identities are fundamentally different and potentially antagonistic (Lipset, 1990; Widdis,

1997). From a practical standpoint, differences across the border could also be the result of different policy objectives and differing levels of empowerment between federal and sub-federal levels of government in making environmentally targeted decisions (Alper, 2004). When looking between sectors, it is possible that those in the government sector may be more attuned to political circumstances and restraints than their non-government counterparts, potentially giving them a more tempered opinion in regard to the abilities of the SWA. Finally, those near the problem (i.e. local government) could have a heightened interest in Boundary Bay than those in higher levels of government (i.e. provincial, state, or federal government) (Norman Bakker, 2005).

The questionnaire looked for the presence of social capital along several distinct themes. These themes will be analyzed and discussed separately; however, they all feed back into the crux of this thesis: does social capital exist? The four sections of the questionnaire are:

- Growth and intensity of interaction, along with shared environmental understandings
- A consensus in regard to the main purpose of the group
- Mutual recognition of the main challenges the group faces
- Mutual agreement with suggestions for changes the group could make to further future successes

Table 4.1. **Division of Americans, Canadians By Sector and Level**

	Gov.	Non-Gov.	Local Gov.	Regional/Federal Gov.	Total
Canadians	14	9	6	8	23
Americans	3	1	2	1	4
Total	17	10	8	9	27

A quick comment must be made about the demographics of my data, specifically the large difference in numbers of Canadians and Americans. Ultimately, only four Americans responded to the survey. While there was at least one American in every possible sector or level of government, it must be stated that for most sub-groups, it is Canadian respondents that comprise the bulk of

responses. Table 4.1 shows the numbers of Canadians and Americans within each sub-group.

However, the responses received were the responses received, and so analysis was conducted with the data obtained, and conclusions drawn. Perhaps further study could seek to reach additional Americans, but at this point in time, analysis and discussion refers to the data available. Thus, all conclusions must be made with the implicit understanding that the results may be biased towards a Canadian perspective.

4.1 Growth and Intensity of Interaction, Tone, and Shared Understandings

The first section of analysis sought to determine if there was an atmosphere conducive to building relationships. This was further broken into several subsections that sought to examine multiple dimensions of this component of research.

These dimensions are: (1) the establishment and growth in intensity of social connections, (2) positive tone and mutually shared environmental understandings, and (3) mutual recognition of a shared contiguous region and resulting management practices. These dimensions were loosely derived from the literature describing social capital (see section 2.2.5 for detail). Specifically, I sought to determine the presence and growth of social networks, the presence of trust, shared norms and beliefs, and finally, a mutually shared understanding and identification with place. These subsections, and the survey questions developed to operationalize them, are summarized below:

Growth and Intensity of Connections: Questions 16A through Questions Q17B refer to how intensely respondents feel they interact with stakeholders on both their side of the border and across the border, both before and after becoming involved with the SWA. Specifically, the following four questions were asked:

- Q16A: Before joining the SWA, how frequently were you involved with other stakeholders from the same side of the border as you?
- Q16B: Before joining the SWA, how frequently were you involved with other stakeholders across the border from you?
- Q17A: After joining the SWA, how frequently were you involved with other stakeholders from the same side of the border as you?
- Q17B: After joining the SWA, how frequently were you involved with other stakeholders across the border from you?

Positive Tone and Mutually Shared Understandings of Environmental Problems or Successes: A set of three questions sought to determine not only if there was wide consensus that the SWA had a friendly and positive tone, but furthermore, if that led to a shared understanding and agreement on both the environmental issues being addressed, and recognition of what a successes was. Respondents were asked to agree or disagree on a scale of one to five (1 – Disagree, 5 – Agree) with the following statements:

- Question 18. In general, the atmosphere at meetings is positive and friendly.
- Question 23. On average, most people involved with SWA agree on the nature and extent of the water quality issues.
- Question 24. On average, most people agree with what constitutes a success for the SWA.

Contiguous Region and Management: Another series of three questions sought to determine if there was a recognition and mutual sense of belonging to a transboundary ecological region. The following three statements were used, and again, respondents were asked to agree or disagree with each on a scale of one to five.

- Question 20. How strongly do you agree with this statement "When I think about the Boundary Bay Basin, I focus more on it as a whole ecosystem, irrespective of the political delineations drawn by the border."
- Question 21. In your day to day work you are constrained to making decisions or considering just the portion of the ecosystem that is on your side of the border.
- Question 22. On average, people involved with SWA focus on the ecosystem as a whole, irrespective of the political delineations drawn by the border.
  The results for each subsection will be discussed separately below. However, they all feed

back to the ability of the SWA to cultivate an atmosphere that can induce and foster functional

relationships between stakeholders.

4.1.1 Growth and Intensity of Connections. I first sought to determine if there had been any changes or growth in structural social capital due to involvement with the SWA. While most of my research is focused on cognitive aspects of social capital (shared norms, shared expectations, and shared understandings) social capital is a shared capital, and therefore understanding if stakeholders are more networked than before is important. When examining the amount of interaction among stakeholders involved with the SWA, I wanted to determine three things:

1. Determining the Benchmark: How connected were stakeholders before becoming involved with the SWA
2. Increases in Interconnectivity: How much more frequently do stakeholders interact, both with stakeholders on the same side of the border, and with stakeholders across the border.
3. Differences between Sub-Groups Interconnectivity: Are some sub-groups are more interconnected in comparison to others.

Table 4.2 summarizes the average amounts of interaction when examining the entire survey population.

Table 4.2. **Amount of Interaction on Both Sides, Before and After Joining SWA**

	Before Joining SWA			
	Same Side of the Border		Other Side of the Border	
	Median	*Mean*	*Median*	*Mean*
Entire Survey Population	5	4.33	1	2.18

	After Joining SWA			
	Same Side of the Border		Other Side of the Border	
	Median	*Mean*	*Median*	*Mean*
	5	4.36	3	2.82

It appears that even before joining the SWA, stakeholders are fairly strongly connected with stakeholders on their side of the border. After joining the SWA, unsurprisingly stakeholders remain strongly connected with others on their side of the border.

I next sought to determine if respondents interacted more frequently with stakeholders on their side of the border in comparison to stakeholders across the borders. Referring to Table 4.2 when comparing how with what rate of frequency stakeholders interact on their side of the border in comparison to how frequently they engage across the border *before* they became involved with the SWA, a difference existed. Specifically, it appears that prior to joining the SWA, stakeholders interacted quite frequently with stakeholders on their side of the border, and virtually never across the border.

Even after becoming involved with the SWA, a significant difference existed between the rates of interaction with stakeholders on the same side of the border in comparison to the frequency of interaction across the border, with far more interaction still occurring on the same side of the border. Nonetheless, the amount of interaction across the border has still improved in comparison to the rates of interaction before joining the SWA. Thus, it does appear that the SWA has contributed to increasing interaction with stakeholders across the border. Again referring to Table 4.2, the average interaction with stakeholders across the border before joining the border is very low, if at all. After joining the SWA, interaction among stakeholders across the border has increased, from nothing or infrequently to somewhat regularly.

Table 4.3. Average Response To Amount of Interaction

Group	Before Joining SWA				After Joining SWA			
	Same Side of the Border		Other Side of the Border		Same Side of the Border		Other Side of the Border	
	Median	*Mean*	*Median*	*Mean*	*Median*	*Mean*	*Median*	*Mean*
CA	5	4.2	1	1.95	5	4.26	2	2.56
US	5	5	5	5	5	5	4	4
Gov.	5	4.6	1	2.73	5	4.6	3	3
Non Gov.	5	3.89	1	1	5	3.86	3	2.43
Local Gov.	5	5	2	2.67	5	5	3	3
Region/Federal Gov.	5	4.25	3	3	5	4.25	3	3

(1 is Never, 5 - Frequent)

When investigating the responses of sub-groups (Table 4.3), the analysis tells us several things. It would appear, from the average responses, that Americans have the upper hand in terms of how frequently they interact across the border (both before AND after joining the SWA) than their Canadian counterparts. However, as Table 4.3A below indicates, when comparing the amount of interaction Canadians and Americans have across the border before joining the SWA with non-parametric tests (Mann-Whitney U tests), no significant difference appears. While this would seem counterintuitive given the vast discrepancy between the medians of these two sub-groups, this could perhaps be a result of the far greater number of Canadian participants than Americans participants, 23 to 4 respectively.

4.3A. Summary of Statistical Differences Between Subgroups
(Mann-Whitney U Test)

			USA-Canada	Gov.-Non Gov.	Local-Regional/Federal
Before Joining SWA	**Same Side of Border**	**Exact Significance (2-Tailed)**	0.388	0.144	0.473
		Significantly Different?	No	No	No
	Other Side of Border	**Exact Significance (2-Tailed)**	0.265	**0.051**	0.767
		Significantly Different?	No	**Yes**	No
After Joining SWA	**Same Side of Border**	**Exact Significance (2-Tailed)**	0.523	0.26	0.473
		Significantly Different?	No	No	No
	Other Side of Border	**Exact Significance (2-Tailed)**	0.166	0.601	1
		Significantly Different?	No	No	No

Answers are considered significant to the .1 Level.

It should also be noted that an oddity emerges when looking at the intensity of interaction across the border by Americans. Given the averages, it would appear that Americans interact *less* across the border after joining the SWA then they did before. However, despite the raw numbers, statistical analysis using a Wilcoxon Signed Rank Paired Test does not show a significant difference between how frequently Americans interacted across the border after joining the SWA in comparison to before joining. This potentially could be the result of a mis-selection by one the American respondents, and given such a small sample size it caused a large, albeit statistically insignificant, down shift for the average response of Americans. Thus, while odd, this result cannot be considered evidence that American's connectivity across the border decreased after joining the SWA.

Putting aside the responses of the sub-groups of Canadians and Americans, the comparisons of other sub-groups, those of non-government vs. government, and local government vs. regional/federal government, does not show that one sub-group is particularly better connected than their counterpart, neither before becoming involved with the SWA nor after becoming involved. All start with a quite high level of interaction on their own side of the border, all are interacting very

infrequently across the border before joining the SWA, and all make parallel increases in interconnectivity across the border after becoming involved with the SWA. The one exception is between the amount of interaction government respondents have across the border in comparison to those in the non-government before joining the SWA. In this instance, government respondents interacted somewhat more frequently across the border than their non-government counterparts. However, this difference disappears after becoming involved with the SWA.

In some regard, it is surprising that regional/federal government is no more interconnected than local government, as the scope of their work is more broad than local government, and one would think there would be more reasons for them to reach across the border beyond just the work of the SWA. However, this is not the reflected in the data.

Overall, it would appear that involvement with the SWA has corresponded with a rise in interconnectivity across the border. This would indicate that the SWA has had a role expanding networking across the border, and consequently, would seem to show an increase in structural social capital.

4.1.2 Positive Tone and Shared Understandings. I used the questions that attempted to determine the tone of the group and presence of shared expectations to establish two things: First, when comparing the responses of the three questions within this section, did one or more of these questions garner more agreement in comparison to the others? Second, when comparing the responses of sub-groups to each question individually, do differences between the group's opinions appear?

While there is positive agreement that the SWA has a friendly tone [Table 4.4], that most stakeholders have a shared understanding of the nature of environmental issues, and that there is consensus among stakeholders in regard to what constitutes success, the amount of agreement to these three question is not equal.

Specifically, referring to the first row in Table 4.4, the response to how friendly the group was is very high, indicating that most stakeholders strongly agree the tone within the SWA is friendly and

positive. The amount of agreement related to how much consensus there is for environmental problems is slightly lower in comparison to how friendly the group is perceived. However, it is only slightly lower and still show strong agreement that there is consensus in regard to consensus on environmental problems. Finally, the third row in Table 4.4 indicates that while there is still positive agreement that there is consensus on what a success is, the amount of agreement is less in comparison to the answers for the other two questions.

Table 4.4. **Average Agreement with Aspects Concerning Tone and Understandings Within Group**

	Median Response	Mode Response	Mean Response
Q18. Friendly Tone	5	5	4.55
Q23. Agreement on Problems	4.5	5	3.95
Q24. Agreement on Success	4	4.5	3.79

(1 – Disagree, 5 – Agree)

Table 4.4A. **Summary of Statistical Difference (Wilcoxon Signed Rank)**

	Exact Significance (2-Tailed)	Significantly Different?
Q18 Friendly Tone – Q23 Everyone Agrees on Problem	0.151	No
Q18 Friendly Atmosphere – Q24 Everyone Agrees on Successes	**0.031**	**Yes**
Q23 Everyone Agrees on Problem – Q24 Everyone Agrees on Successes	0.848	No

Table 4.4A summarizes the statistical differences between these three questions. The one difference that surpasses the 0.1 level of significance is that between the responses to Friendly Tone and Consensus for Successes, confirming that stakeholders somewhat more agree that the group has a friendly tone than they do that there is general consensus on what constitutes success.

The results indicate that the ability of the SWA to create a friendly, trustworthy, and positive tone and collectively understand the environmental problems slightly outpaced its ability to create

shared understandings in regard to successes. Thus it would seem that there are aspects of cognitive

social capital present within the SWA. There is an environment conducive to discussion, implying

shared norms as well as shared understandings of the environment. Out of the three areas there is less

of an ability to agree on what a successes for the SWA would look like, indicating work could be done

in better clarifying what solutions would be considered successes. The next sub-section investigates

the different perceptions of sub-groups to these three questions.

   4.1.2.1 Differences between Sub-Groups. While the previous analysis sought to compare if

there were different amounts of agreement among all three questions, and were made by looking at

the responses of the entire survey population, the next phase of analysis compared the responses of

sub-groups to determine if differing perceptions existed between them on a question by question

basis. Table 4.5 summarizes the median responses of all sub-groups to each of the three questions.

Table 4.5. **Sub Group's Average (Median) Responses to Tone and Agreement on Problems, Successes**

	18	*3*	*14*	*8*	*6*	*7*
N=	CA	USA	Gov.	Non Gov.	Local Gov.	Regional/Federal Gov
Q.18: Group has friendly tone	5	5	5	5	5	5
Q.23: Everyone Agrees on Problems	5	4	**4**	**5**	**2**	**4**
Q. 24: Everyone Agrees on Successes	4	4	**3.5**	**5**	4	3

(1 – Disagree, 5 - Agree)

Bolded Numbers Indicate Significance of 0.1 or less. See Table 4.5A for detail

Table 4.5A. **Summary of Statistical Differences Between Subgroups (Mann-Whitney U Test)**

		USA-Canada	Gov.-Non Gov.	Local-Regional/Federal
Q18 Friendly Tone	**Exact Significance (2-Tailed)**	0.356	0.815	0.945
	Significantly Different?	No	No	No
Q23 Everyone Agrees on Problems	**Exact Significance (2-Tailed)**	0.258	**0.031**	**0.087**
	Significantly Different?	No	**Yes**	**Yes**
Q 24 Everyone Agrees on Successes	**Exact Significance (2-Tailed)**	0.875	**0.068**	0.526
	Significantly Different?	No	**Yes**	No

Answers are considered significant to the .1 Level.

When asked if there is consensus on what the nature of environmental problems is, two

pairings of sub-groups have differing perceptions. Table 4.5A summarizes the significant differences

between the responses sub-groups. Looking at the row regarding responses to Q23, the first significant difference in perceptions emerges.

Those in the government sector seem to only somewhat agree with that there is consensus on the nature of environmental problems, whereas their non-government counterparts strongly agree that such consensus exists. Furthermore, when delving even more deeply into the government sector, a significant difference in perception to this question also exists when comparing the responses of local government to regional/federal government. The responses of those in local government indicate they slightly disagree there is consensus as to the environmental problems, whereas those in regional/federal government slightly agree such consensus exist. This is also true when comparing the perceptions of these two groups in regard to whether or not they feel there is consensus as to what constitutes a success for the SWA.

The results of the survey indicate that overwhelmingly the group has a positive and friendly tone. It can thus be implied that the SWA has been able to cultivate trust, and therefore an atmosphere conducive to cooperation for environment problems. When looking at the opinions of sub-groups, all agreed equally and strongly that this was the case.

However, when it comes to the amount of consensus on environmental problems or successes of the SWA, differing opinions emerged. These differences occur not as a result of the border or differing nationality, but rather due to the differing sector and scale or proximity to Boundary Bay. Non-government respondents more strongly agree that there is a shared understanding of the environmental problems than do their government counterparts. While both groups agree more than disagree on this point, government respondents only weakly agree that consensus for environmental problems exist. Differing perceptions among government and non-government respondents emerge when examining how strongly they agree there is consensus in regard to what constitutes a success for the SWA. Government respondents agree less strongly on this point than their non-government counterparts. Perhaps because most non-government respondents are members of environmental

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non-profits, they come from organizations that are advocacy based and more idealistic than those working at a government agency.

Proximity to Boundary Bay also seems to affect how much consensus is perceived to exist for environmental problems. Those working for local government somewhat disagree that everyone shares the same understanding of the environmental problems, whereas those located at an agency somewhat geographically removed from Boundary Bay (ie state, provincial, or federal), have a more agreeable take as to whether or not there is consensus. Perhaps this has something to do with the lower priority higher levels of government give to one rather small scale issue than their local government counterparts.

While it is clear that tensions exist between government and non-government groups, and at times between local and regional/federal government, ultimately the magnitude of differing perceptions is still rather minimal. While it would certainly behoove the SWA to consider why such differing opinions exist, it does not appear that they are so vast that they are critically important. The results of the survey indicate that overwhelmingly the group is found to have a positive and friendly tone, as well as the presence of shared understandings, and the responses of each individual sub-group echoes this sentiment.

As a final summary it seems that overall there seems to be strong indications that trust, familiarity, and shared understandings and norms exist in the SWA. However, depending on one's background or amount of investment and proximity to Boundary Bay, differing perceptions result. It does not appear, at least based on the data available, that one's location on either side of the international border makes a difference in regard to opinions of SWA's tone, or presence of shared norms and mutual understandings.

4.1.3 Contiguous Region and Management. Questions 20, 21, and 22 all attempt to

identify if SWA participants feel part of one ecological community, and whether or not they are able

to react or make managerial decisions based on that feeling of environmental solidarity. To reiterate,

the questions that respondents were asked in this section were:

- Question 20. How strongly do you agree with this statement "When I think about the Boundary Bay Basin, I focus more on it as a whole ecosystem, irrespective of the political delineations drawn by the border."
- Question 21. In your day to day work you are constrained to making decisions or considering just the portion of the ecosystem that is on your side of the border?
- Question 22. On average, people involved with SWA focus on the ecosystem as a whole, irrespective of the political delineations drawn by the border.

The first thing I sought to understand was did these questions have the same level of

agreement. Second, I wanted to determine if sub-groups all had the same perceptions.

4.1.3.1 Differences in Responses to Regional Questions. I first sought to understand if there

was a difference in how strongly stakeholders identify with the transborder environmental region and

how strongly they felt they were constrained from making decisions with the best interests of the

region in mind due to political boundaries. Table 4.6 summarizes the average responses of the entire

group to Q20, Q21, and Q22.

Table 4.6. **Agreement with Aspects Concerning Belonging to Transborder Region**

	Median	Mode	Mean
Q.20: Personal Feeling of Belonging to Region	4.5	5	4.38
Q.21: Awareness of Constraints of Political Boundaries	4	4.5	3.78
Q. 22: Awareness of Others Identification with Region	4	4	3.67

(1 - Disagree, 5 - Agree)

Statistical Analysis revealed no significant differences among the responses to these questions. Referring to Table 4.6, the averages for all three questions indicate that there is no significant difference among these three questions, and the level of agreement for all is only somewhat positive. Respondents somewhat agree they personally feel a sense of belonging to a region that transcends the border, they somewhat agree that they are aware of others holding this same sense of belonging, and finally, they also somewhat agree they are constrained by political boundaries that do not match the geographic extent of this ecological space.

This sense of belonging or solidarity with transboundary ecological space, while also being bound by political boundaries, echoes sentiments expressed in the initial wave of interviews. As one respondent noted:

"We share a region, we're the lower Fraser river valley, right?

Interviewer: Yes we are

And yet we have this construct that bifurcates it and so we have incomplete land use, we have incomplete transportation processes…so there's this hill we have to climb" **(US.01)**

Another respondent also noted that while intrinsically they felt the Boundary Bay Basin transcends the border, when it comes to their day to day work, they forced to focus exclusively within their own jurisdiction:

"I spend most of my time worrying about the Canadian side, because that's where a lot of the problems have been identified. I mean I know, I'm aware of some of the work that's been done in Blaine, on the Blaine side, and I think there's just been a lot more people working towards trying to fix the problems there, so a lot more, I think the legislation requires agencies to get more involved, and, but although having said that I'm not super familiar with what's going on down there, this is just what from meetings and limited experience with it. So we don't have the same amount of level of effort going on our side, so I've definitely been, yeah, focusing more on what's going on on our side (CA.03).

4.1.3.2 Differences between Sub-groups. After determining whether or not the general group considered some aspects of regional construction to be more present than others, I then sought to determine if there were differences in opinions of different sub-groups. The results are displayed in Table 4.7.

Table 4.7. Sub-Group Average (Median) Responses to Construction and Management of Region

	CA	USA	Gov.	Non Gov.	Local Gov.	Regional/Federal Gov.
N=	*20*	*3*	*15*	*9*	*6*	*8*
Q20 Personal Feeling of Belonging to Region	4.5	4.5	4	5	4.5	4.5
Q21 Awareness of Constraints of Political Boundaries	4	5	4	3.5	**4**	**5**
Q22 Awareness of Others Identification with Region	4	4	4	4	2	4

(1 – Disagree, 5 – Agree)
Bolded Numbers Indicate Significance of 0.1 or less. See Table 4.7A for detail.

Table 4.7A. Summary of Statistical Between Subgroups (Mann-Whitney U Test)

		USA-Canada	Gov.-Non Gov	Local-Regional/Federal
Q20 Personal Feeling of Belonging to Region	**Exact Significance (2-Tailed)**	1	0.482	1
	Significantly Different?	No	No	No
Q21 Awareness of Constraints of Political Boundaries	**Exact Significance (2-Tailed)**	0.698	0.238	**0.045**
	Significantly Different?	No	No	**Yes**
Q22 Awareness of Others Identification with Region	**Exact Significance (2-Tailed)**	0.412	0.247	0.266
	Significantly Different?	No	No	No

Answers are considered significant to the .1 Level.

There were really no differing opinions when examining perceptions based on nationality, sector of government, or level of government with one exception: the opinions of local and regional/federal were different in regard to how constrained they feel by the political border. As Table 4.7A illustrates, the difference between local and regional/federal stakeholders in regard to how constrained they feel political boundaries is well below the 0.1 significance level.

Those living with the border in their backyard feel less affected by border constraints than those at a greater distance, perhaps indicating strong localized social capital. While the average response for both local and regional/federal government is in agreement that they feel constrained by the border, it appears that regional/federal respondents more strongly feel this constraint.

Why local government stakeholders feel slightly less constrained by the border than their higher level counterparts isn't immediately clear. Perhaps because provincial, state, and federal jurisdictions are already so large they have less ability to consider working outside of them. Perhaps proximity to the area of concern provides an emotional attachment, making stakeholders at municipal and local levels more willing to collaborate across jurisdictions. Ultimately though, this difference of opinion is slight.

It should be noted that looking at the medians of local and regional/federal governments, it appears that there is a larger difference in their respective responses to how constrained they feel by the border and how strongly they feel others recognize a transboundary space. Referring above to Tables 4.7 and 4.7A, it appears that the gap of responses of local government and federal government is larger for the third statement than the second. However, comparing the mean averages of both groups for both of these statements, it does become clear that there is a wider gap in opinions of both groups for how constricting they feel the border is. Table 4.7B shows the mean and median responses of both groups for both questions.

Table 4.7B. **Mean Averages of Local and Region-al/Federal Government to Q21 and Q22**

	Local Gov.	Regional/Federal Gov.
Q21 Awareness of Constraints of Political Boundaries	3.33	4.5
Q22 Awareness of Others Identification with Region	2.8	3.8

4.2 Assumed Functions of Group

Looking at shared values, understandings, and sense of belonging is critical in evaluating the presence of cognitive and structure social capital within the SWA, however at a more practical level it was important to determine if members of the SWA agree on the central mission of the group. After all, if respondents don't agree about what the SWA's purpose is, it could be assumed the group would not operate successfully.

From the initial interviews six functions were identified as being central to the SWA's purpose:

- Q. 9 Share Information: SWA is a place to share information and data about environmental quality with stakeholders across internal and external borders.
- Q. 10 Water Quality Improvement Measures: SWA is attempting to implement regulatory processes that would improve water quality in Boundary Bay Basin.
- Q 11 Resumption of Shellfish Harvesting: SWA is implementing processes to attempt to reopen shellfish beds for harvesting in Boundary Bay Basin.
- Q 12 Serve as Political Tool: SWA serves a broader political purpose or meets obligations of existing legislation or cross border agreements. For instance, an initial interviewee noted that engaging with the SWA was a way for Americans to build up general good-will and demonstrate a good neighborliness with Canada, potentially a benefit for any future, contentious despites that could arise.
- Q 13 Provide Networking Opportunities: SWA provides networking opportunities with other environmental stakeholders.
- Q 14 Public Outreach and Education: SWA conducts public education and outreach in regard to environmental quality.

Within these six identified functions, I sought to establish three things for each: (1) before joining the group, did respondents assume these goals would be a purpose of the group?, (2) after

becoming involved with the SWA was this observed to be the case?, and finally, (3) if there was a

disparity between respondents expectations and observed reality, is this problematic for the SWA's

success? However, when comparing the average responses of expectations to the observed reality of

the group (both when examining the responses of the survey population as a whole and within the

responses of each sub-group), there were no significant differences in expectations and observations

(see Table 4.8 below for exact numbers). In layman's terms, it appears that the expectations

respondents had were match by the observations they encountered first hand.

<p align="center">*Table 4.8.* Assumed vs. Observed Functions of SWA</p>

			Mean	Median	Mode	Sig. (Wilcoxon Signed Rank)
Share Info	Assumed	9A	5	4.29	5	0.563
	Observed	9B	5	4.43	5	
Water Quality Program	Assumed	10A	5	3.96	5	1
	Observed	10B	4	4.05	5	
Shellfish Harvesting	Assumed	11A	4	3.62	5	0.102
	Observed	11B	3	3.16	4	
Political Gesture	Assumed	12A	4	3.38	4	
	Observed	12B	3	2.67	3	
Networking	Assumed	13A	5	4.39	5	0.25
	Observed	13B	5	4.52	5	
Public Outreach	Assumed	14A	4	3.29	4	1
	Observed	14B	3	3.06	2	

(1 – Disagree, 5 – Agree)

4.2.1 Comparison of Amount Agreement between Functions. The original survey asked

respondents how strongly they agreed with six different functions; both before they joined the SWA

and then after they actually become involved and familiar with what the group's actual intentions

were. Since there was no significant difference in the average agreement for each function both

before and after joining the SWA, to simplify my analysis, I only used the responses to stakeholders'
perceptions before joining the group.

I sought to understand the data on stakeholder perceptions of the SWA's purpose two ways, I
first ran hierarchal cluster analysis to determine if some functions appear to be related, and I then
sought to understand the degree to which stakeholders agreed each function was part of SWA's
mandate.
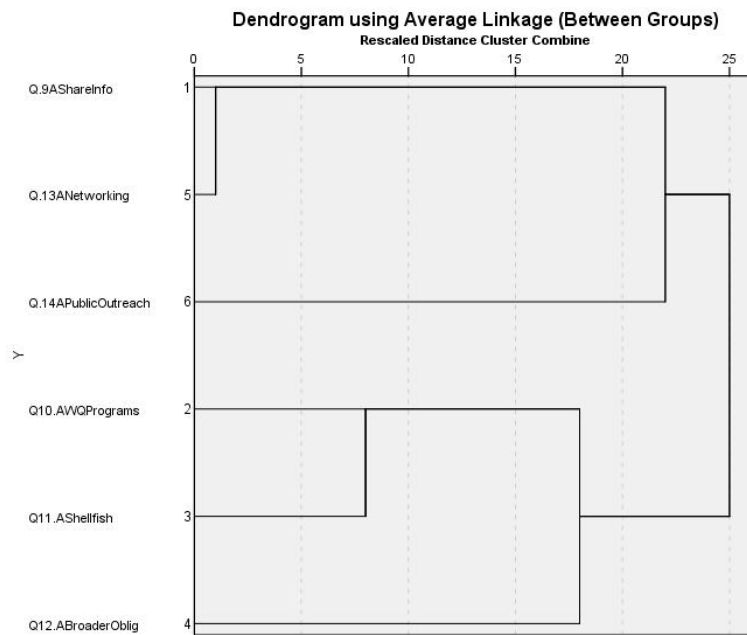
Figure 4.1. Cluster Analysis, Functions

As Figure 4.1 shows, hierarchal cluster analysis revealed two closely related clusters, and the
remaining two individual functions didn't seem to relate well into either cluster until a much later
stage. The clusters were:

> Cluster 1: Q9, Share Information, and Q13 Network
> Cluster 2: Q10 WQ Improvement Efforts and Q11 Shellfish Harvesting
> Remaining Functions: Q12 Political Gesture and Q14 Public Outreach.

***Table 4.9.* Comparison of Average Agreement
with Functions of SWA**

	Median	Mode	Mean
Q9 – Share Infor-mation	5	5	4.29
Q13 – Network	5	5	4.39
Q10 – WQ Im-provement	5	5	3.96
Q11 – Resume Shellfish Harvest	4	5	3.62
Q12 – Political Gesture	4	4	3.38
Q14 – Outreach	4	4	3.29

(1 – Disagree, 5 – Agree)

The cluster analysis tells us several things. Figure 4.1, the dendogram generated by the cluster analysis, illustrates how closely the responses of one function reflect responses to the others. The more similar the pattern of responses, the closer they will be tied together on the dendogram. The first clear cluster identified on the dendogram is between the two functions that most directly serve to build and reinforce relationships: being a place to network and being a forum to share information and communicate.

The second cluster identified is between the two most practical and goal oriented functions, that the SWA should undertake water quality improvement projects and that the SWA should work toward reopening shellfish harvesting. Both of the clusters identified seem logical, and indicate clear relationships between the responses to similar functions.

The remaining two functions seem very loosely related to any other functions. They are conducting public outreach and filling a broader political obligation. Although distantly related, the function of public outreach does seem to have a weak connection to the cluster of relationship building functions. This would indicate that conducting public outreach seems to be an extension of the social environment within the SWA, but perhaps not an integral part of that type of activity.

A similar relationship exists between the function of being a broad political tool and the cluster of more goal oriented and practical functions. While the ability to fulfill broader obligations or build a sense of good-neighborliness is weakly connected to the SWA's ability to undertake environmental management projects, it's perhaps not central to the group's purpose.

As noted above, I sought to understand the data on stakeholder perceptions of SWA functions in two ways. I ran hierarchal cluster analysis to determine if some functions appear to be related, and I then sought to understand the degree to which stakeholders felt each function was part of SWA's central purpose. In order to determine how each function is ranked, we need to refer to Table 4.9.

What this table indicates is that the cluster of functions related to building relationships are ranked the highest, with the most amount of agreement that such functions are central to the purpose of the SWA. These two functions are sharing information and networking. Thus, it appears that reinforcing social connections and maintaining lines of communication between stakeholders is a central part of the SWA's purpose.

The functions within the goal oriented cluster (working towards improved water quality and attempting to resume shellfish harvesting) are ranked slightly less high. In this case, there is a slightly less agreement that these are central functions of the SWA, albeit there is still some agreement that these are somewhat central to the purpose of the SWA.

Finally, the two functions that weren't strongly linked to any other functions appear to be also be ranked neutrally. They are not considered to be a central part of the SWA purpose, but they are also not outright rejected.

4.2.2 Comparison of Sub-groups Opinions of SWA Functions. The previous section attempted to determine how central stakeholders felt each individual function was to the mission of the Shared Waters Alliance. This section compares the responses of sub-groups to determine if differing perceptions between these groups exist. Tables 4.10 shows the sub-group's median

responses to each function, while 4.10A summarizes for what instances significantly different

opinions exist between sub-groups.

Table 4.10. **Sub-group's Responses (Median) to Functions of SWA Before Joining**

		CA	USA		Gov.	Non Gov.	Local Gov.	Regional/Federal Gov
N=		20	4		15	9	6	8
Social Reinforcement	**Q9** – Share Information	4.5	5		4	5	3.5	5
	Q13 – Network	5	4.5		4.5	5	4	5
Goal Oriented	**Q10** – WQ Improvement	5	4.5		**3.5**	**5**	3.5	3
	Q11 – Resume Shellfish Harvest	4	4		**3**	**5**	**4**	**2**
	Q12 – Political Gesture	4	3		4	4	3.5	4
	Q14 – Outreach	4	3.5		**3**	**4**	2	3

(1 – Disagree, 5 – Agree)
Bolded Numbers Indicate a Significance of 0.1 or Less. See Table 4.10A for detail

Table 4.10A. **Summary of Statistical Differences Between Subgroups Before Joining**

		USA-Cana-da	Gov.-Non Gov	Local-Regional/Federal
Q9 - Info Sharing	**Exact Significance (2-Tailed)**	0.446	0.263	0.333
	Significantly Different?	No	No	No
Q13 - Networking	**Exact Significance (2-Tailed)**	1	0.305	0.656
	Significantly Different?	No	No	No
Q10 – WQ Improvement	**Exact Significance (2-Tailed)**	1	**0.033**	0.883
	Significantly Different?	No	**Yes**	No
Q11 – Resume Shellfish Harvest	**Exact Significance (2-Tailed)**	0.848	**0.056**	**0.093**
	Significantly Different?	No	**Yes**	**Yes**
Q12 – Political Gesture	**Exact Significance (2-Tailed)**	0.335	0.585	0.939
	Significantly Different?	No	No	No

	Exact Significance (2-Tailed)	0.983	**0.01**	0.438
Q14 – Outreach	**Significantly Different?**	No	**Yes**	No

Answers Are Considered at the .1 Level

Looking within the relationship building cluster (networking and sharing information) shows there are no differing opinions between sub-groups. Furthermore, the agreement for these two functions is quite high for all, indicating that all sub-groups recognize the central of role relationship building, and that a large purpose of the SWA is to provide a place to communicate across the border.

For the more action-oriented cluster (working towards improving water quality and re-opening shellfish harvesting) differing opinions emerge. For both of these functions, government and non-government respondents have differing opinions, and in both instances non-government respondents strongly feel that these two functions are more central to the SWA purpose than do their government counterparts, who only weakly agree on the importance of these functions.

There is also a different perception between government and non-government respondents related to conducting public outreach. Again, the response of non-government is stronger than the response of the government sector. Government indicates that they neither agree nor disagree that this function is part of SWA's overall purpose, whereas non-government positively agrees that it is. Perhaps this has to do with the background of many non-government respondents, who are in environmental and community non-profits. Because of their backgrounds, perhaps they have a stronger desire to move environmental management of Boundary Bay out of the hands of government, and place at least some of the information in the public's hands.

A difference in opinion between local government and regional/federal government appears when looking at their responses to the prospect of working towards reopening shellfish harvesting. Again, the group with a higher investment in the area of concern, local government, is of the opinion that this is a function of the SWA, whereas regional/federal respondents are more neutral in their response. It appears that when considering the goal oriented functions that call for integrated

environmental management, one's proximity to Boundary Bay will affect one's perception. The further away, the less interest there is in these joint-management projects.

Several broad conclusions can be drawn from the data on stakeholders' opinions of the main purpose of the SWA. First, the responses seem to fall into two distinct clusters, with an additional two functions that seem unrelated to anything else. The responses to the two functions that pertain to instigating and maintaining cross border social relationships are very strongly connected. These two functions also have the strongest amount of support, with every sub-group strongly in agreement that these two functions are central to the purpose of SWA. A second cluster emerged that also demonstrated a strong relationship between the two most practical, goal oriented functions. While these two functions are still widely considered to be part of the SWA's purpose, levels of agreement were perhaps not as strong as when looking at building relationships. Finally, two functions (serving as a political gesture and conducting public outreach) didn't seem to have any strong relationship to any other function, and are less strongly considered to be part of the SWA's purpose.

The second overarching conclusion from this section is that the international border does not seem to make a difference in stakeholders' opinions. Americans and Canadians seem to have the same perceptions of each function. However, another sort of border seems to make a marked difference in how the mission of the SWA is perceived, particularly in regard to how proactive the mission of the SWA is. When comparing between sectors, those in the non-government sector seem have more support for goal-oriented functions than those in government.

Local and regional/federal governments hold different opinions when looking at their responses to whether part of the SWA's mission is to try to help reopen shellfish harvests. Regional/federal government slightly disagree this is something the SWA should be working on whereas local government does feel this is a purpose of the SWA. It thus appears that depending on how closely a stakeholder is located to Boundary Bay, the higher their level of interest problem solving functions.

The final conclusion that can be drawn in terms of inducing and fostering social capital, there is a structure in place. The desire to build networks and communicate across the border is considered central to the purpose of the SWA. However, tensions exist depending on how much exposure to the problem one has, and therefore it would seem helpful if the SWA more clearly defined its purpose and main functions to close the gap in understanding between sectors and level of government.

4.3 Challenges

The challenges identified in the initial qualitative interviews were consolidated into ten questions for the survey. Survey respondents were then asked on a scale of 1 to 5 (with 1 being substantial and 5 being unsubstantial) how problematic they felt each of these are for the SWA. The challenges on the survey were:

- Q. 25 - Agreeing on a time and a place to meet.
- Q. 26 - The slowness of the group to implement a program or process that would attempt to improve water quality.
- Q. 27 - The group's lack of visibility to environmental managers throughout the region.
- Q. 28 - A lack of leadership individuals or institutions.
- Q. 29 - A lack of resources.
- Q. 30 - A lack of authority from higher levels of government.
- Q. 31 - Wait times at the border.
- Q. 32 - The treatment received when crossing the border.
- Q. 33 - Inconsistencies and gaps between jurisdictions on the same side of the border.
- Q. 34 - Differing policy objectives of the United States and Canada.

As with all the other components of my research, I sought to understand two things: (1) When looking at the survey population as a whole are some challenges considered more inhibiting to success than other, and (2) Do sub-groups have different opinions of how substantial they feel each challenge is?

4.3.1 Comparison of Magnitude of Challenges. In order to determine which challenges are consistently ranked more or less problematic than others, hierarchal clustering and then Signed-Rank-Wilcoxion tests were conducted. Cluster Analysis [Figure 4.2] was an attempt to reduce the amount of data into more streamlined dimensions. The following clusters emerged:

- Cluster 1 [Logistics of Meeting] Q25 Meeting Time and Place, Q31 Border Wait Times, and Q32 Border Agents
- Cluster 2 [Bureaucratic Hurdles] Q26 Lack of WQ Improvement Projects, Q28 Leadership, Q29 Lack of Resources, and Q34 Differing Policy Objectives
- Cluster 3 [Stature] Q27 Low Visibility and Q30 Lack of Authority
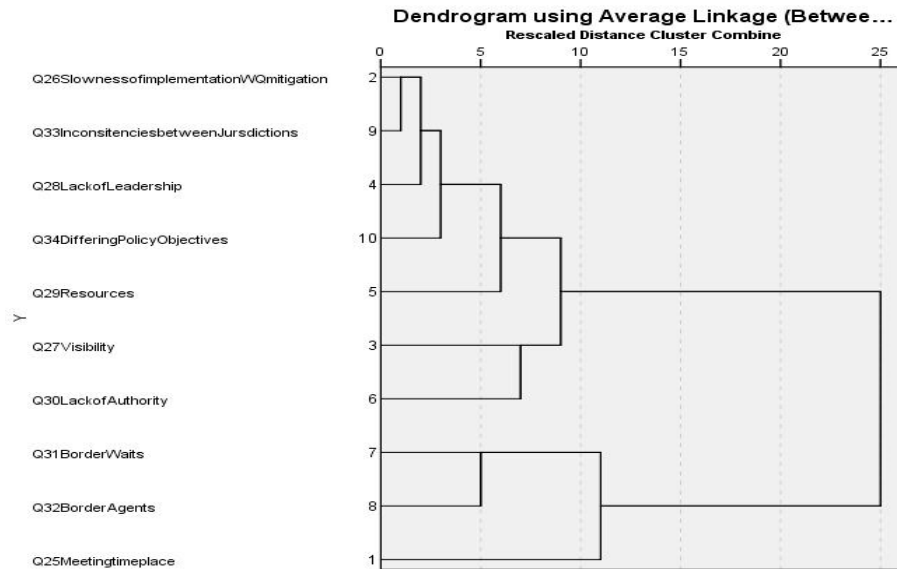
Figure 4.2. Cluster Analysis, Challenges

Table 4.11. **Perception of Magnitude of Challenges for SWA**

		Median	Mode	Mean
Cluster 1 – Logistical	**Q25.** Meeting Logistics	4	5	3.67
	Q31. Border Waits	4	5	3.45
	Q32. Border Agents	4	5	3.58
Cluster 2 – Bureaucratic Hurdles	**Q26.** Lack of Projects	2	1	1.88
	Q28. Lack of Leadership	1	1	1.81
	Q29. Lack of Resources	1	1	1.5
	Q33. Jurisdictional Gaps	2	2	1.95
	Q34. Differing Policy	2	2	2.05
Cluster 3 – Stature	**Q27.** Visibility	2	2	2.25
	Q30. Lack of Authority	1	1	1.76

(1 – Substantial Problem, 5 – Unsubstantial Problem)

Statistical analysis looked within the three clusters to determine if significant differences among the responses in each separate cluster existed.

Table 4.11 summarizes the average responses for each cluster among the entire survey population.

The first cluster contains what can be called logistical challenges. While border wait times and treatment by border agents are symptomatic of current US-Canada border security policies, for stakeholders they more directly represent an impediment to attending meetings. Within this cluster, there are no significant differences among the responses to these three questions. Not only are the opinions in regard to how substantial these challenges statistically the same, they are also quite low. This indicates that none of these three challenges are considered terribly problematic. At most, they are seen neutrally, perhaps recognized as somewhat of an impediment, but easily surmounted.

The second cluster contains what can be considered bureaucratic hurdles. While a rather diverse set of challenges, they all lead back to some institutional or bureaucratic obstacle posed from outside of the SWA, and therefore not entirely within stakeholders ability to change. A lack of leadership, lack of resources, jurisdictional gaps, differing policy objectives all speak to structural impediments already in place. While perhaps not directly a bureaucratic challenge, even the slowness of the SWA's ability to institute any cross border environmental projects can be seen as a result of the other bureaucratic hurdles. Within this group there are no significant differences in how substantial such challenges are viewed, and they are seen as quite severe to the SWA's potential success. It thus appears that stakeholders are well aware of how problematic outside conditions are for the success of their group. This is not surprising, as earlier work by Norman and Bakker (2005) also discovered many of the same problems. It is also somewhat dismaying, because these are outside of SWA stakeholders' ability to change on their own.

The final cluster can be considered issues affiliated with the stature of the group. This includes both the low visibility of the SWA to other environmental managers located near Boundary Bay, but also recognition and validation from the highest levels of government. Within this cluster, no

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distinction is made between how substantial these issues viewed in terms of the SWA's success. Specifically, both are somewhat substantial problems for the SWA. While the level of concern is perhaps not as acute as for the bureaucratic hurdles, nonetheless it is clear that stakeholders realize that their stature is not as high as it could be.

Overall, logistical issues are the least of stakeholders; concerns. Even issues with border security practices are not overwhelming. This seems to confirm what came up in earlier interviews: border security was a nuisance but not insurmountable. Adjustments can be made by border crossers in order to accommodate them. One interviewee explained how they learned to frame their questions in a way that would be more amendable to the border security paradigm after a poor crossing experience:

> *"We said 'We're going down to plant trees', well Holy Cow! Don't say that. (Laughter). Just say you're going down to meet a friend. (CA.02)"*

Even long border wait times can be dealt with, if they are properly anticipated and built into travel time. As another interviewee noted:

> *"Chance encounters, random discoveries, things like that, that's impeded. If you want to plan something, well, now you just plan for the longer delays and things like that. But you can account for it (CA.01)"*

While getting across the border and to meetings is not a problem, or is only minimally problematic, stakeholders are acutely aware of problematic bureaucratic hurdles are. This indicates that despite evidence of a framework amendable to developing social capital, there are major roadblocks that must somehow be dealt with in order for the SWA to succeed and sustain itself over time. Differing policy objectives, jurisdictional gaps, a dearth of resources, and disengaged leadership all threaten to limit the efficacy of the SWA. The constraints of such obstacles are starting

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to be felt and the result of such challenges, the current lack of SWA's ability to implement any water

quality mitigation projects, is itself seen as a deterrent.

The stature of the group, both in its visibility to other environmental managers and to the

general public, as well as its lack of recognition from the highest levels of government, are

recognized as threats to the group. While gaining recognition and authority from upper level officials

may not be immediately possible, gaining more visibility within the immediate area is perhaps a more

feasible and attainable goal.

4.3.2 Differences between Sub-Groups Relative to Severity of Challenges. There were

few challenges that were viewed differently by sub-groups. Table 4.12 summarizes the median

responses of each sub-group to the challenges. By and large, most stakeholders have similar

perceptions to how substantial or problematic they view each challenge. However, there are a few

instances in which different opinions exist.

Table 4.12. **Sub-Group's Average (Median) Perception of Challenges Impact on SWA**

		N= *17*	*4*		*13*	*8*		*5*	*7*
		CA	**USA**		**Gov.**	**Non Gov.**		**Local Gov.**	**Reg/Fed. Gov.**
Logistics	**Q25.** Meeting Logistics	3	5		4	3		4	5
	Q31. Border Waits	**3.5**	**5**		4	3		4.5	3.5
	Q32. Border Agents	3.5	4.5		**5**	**3**		5	4.5
Bureaucratic Hurdles	**Q26.** Lack of Projects	2	1.5		2	1		2.5	1.5
	Q28. Lack of Leadership	1	1.5		2	1		2	1.5
	Q29. Lack of Resources	1	2		1	1		1	1
	Q30. Lack of Authority	2	1		1	2		1	2
	Q33. Jurisdictional Gaps	2	2		2	2		1.5	2
	Q34. Differing Policy	2	2		**2**	**2**		2	2
Stature	**Q27.** Visibility	2	2		2	2		2	2
	Q30. Lack of Authority	2	1		1	2		**1**	**2**

(1 – Substantial Issue, 5 – Unsubstantial Issue)

Bolded Numbers Indicate Significance of 0.1 or less. See Table 4.12A for detail

*Table 4.12A*. **Summary of Statistical Differences Between Subgroups (Mann-Whitney U Test)**

			USA-Canada	Gov.-Non Gov	Local-Reg/Fed.
Logistics	**Q25.** Meeting Time and Place	Exact Significance (2-Tailed)	0.317	0.268	0.438
		Significantly Different?	No	No	No
	Q31. Border Waits	Exact Significance (2-Tailed)	**0.08**	0.295	0.619
		Significantly Different?	**Yes**	No	No
	Q32. Border Agents	Exact Significance (2-Tailed)	0.307	**0.062**	0.452
		Significantly Different?	No	**Yes**	No
Bureaucratic Hurdles	**Q26.** Lack of Projects	Exact Significance (2-Tailed)	0.521	0.351	0.571
		Significantly Different?	No	No	No
	Q28. Lack of Leadership	Exact Significance (2-Tailed)	0.965	0.197	0.953
		Significantly Different?	No	No	No
	Q29. Lack of Resources	Exact Significance (2-Tailed)	0.262	0.764	0.739
		Significantly Different?	No	No	No
	Q33. Jurisdictional Gaps	Exact Significance (2-Tailed)	0.75	0.766	0.971
		Significantly Different?	No	No	No
	Q34. Differing Policy	Exact Significance (2-Tailed)	0.885	**0.056**	0.733
		Significantly Different?	No	**Yes**	No
Stature	**Q27.** Visibility	Exact Significance (2-Tailed)	0.892	0.941	1
		Significantly Different?	No	No	No
	Q30. Lack of Authority	Exact Significance (2-Tailed)	0.457	0.536	**0.048**
		Significantly Different?	No	No	**Yes**

Answers Are Considered at the .1 Level

A significant difference emerges between Canadians and Americans as to how substantial they feel border wait times are. Specifically, it appears the average response of Canadians to this problem is somewhat neutral, whereas Americans do not find border wait times to be problematic at all. Why there are differing attitudes isn't abundantly clear, although there is data from as recent as 2011 that indicates that Canadian automobiles account for 80 percent of all personal vehicular travel crossing at the four Cascadian border crossings (*IMTC*, 2012). Perhaps the individual Canadian stakeholders are more attuned than their American counterparts to the persistence of long border wait times because they encounter the border more often.

The responses of government and non-government participants are significantly different for two challenges. The first difference relates to how problematic the behavior of border agents is viewed. Government respondents seem to see border security practices as less of a problem than their non-government counterparts. Perhaps being from a government agency gives one special clout or additional legitimacy in the eyes of border agents, thereby resulting in less suspicion and better treatment.

The perceptions of government and non-government stakeholders also differed for how substantial differing policy agendas and objectives on either side of the border are viewed. Table 4.12 shows that the median responses of both government and non-government are 2 (as coincidentally, is the mode for each sub-group), a response that would be at odds with the presence of differing opinions. However, when looking up other measures of average (specifically the mean), it is clear that non-government and government responses are in fact quite different. The means for government and non-government are 2.23 and 1.57, respectively. Furthermore, looking at Chart 4.1 shows that the distributions of responses for the two groups are different, with government respondents having a greater range of responses that extends to neutral or somewhat unsubstantial. Finally, it is worth noting that there are nearly *twice* the number of government respondents than non-government (13 to 8), potentially affecting the significance computed.

Figure 4.3. Distribution of Government and Non-government Respondents to Magnitude of Differing Policy Objectives
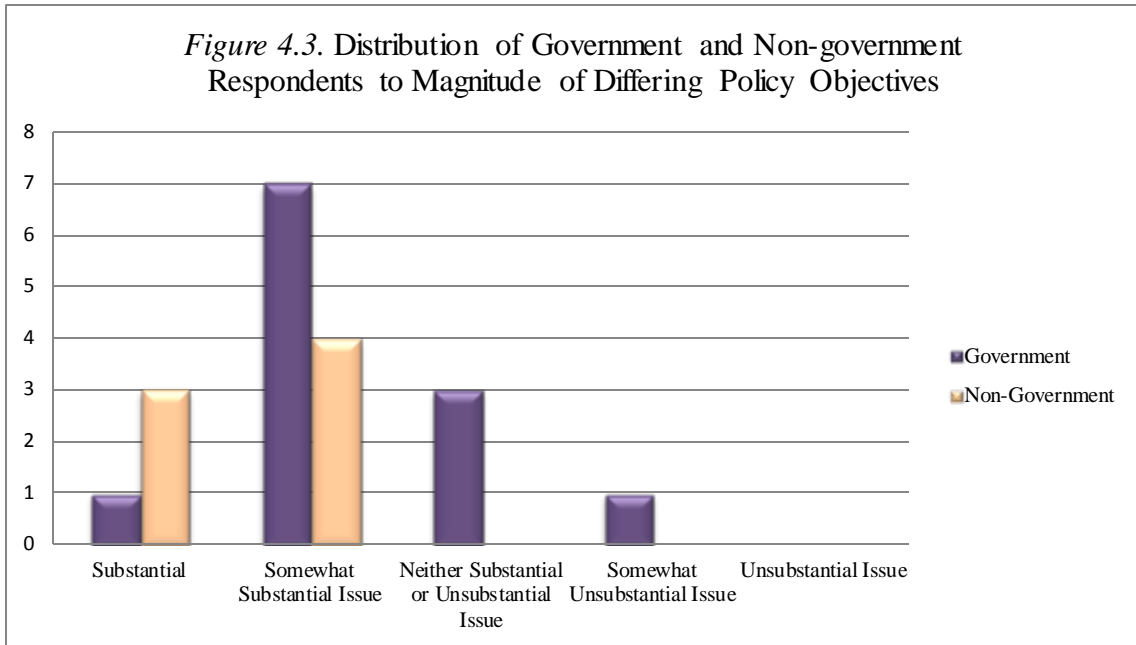
Given a significance of less than 0.1 between the responses of these two sub-groups, it would seem that non-government is under the impression that differing policy objectives on either side of the border are more of a problem than their government counterparts believe. Perhaps because non-government respondents do not work within either Canadian or American government and are therefore less familiar with the respective policies, they have an amplified opinion of how great the differences between the policies of each nation are.

When looking between local and regional/federal government, a difference of opinions exists. Specifically, those in local government strongly feel the lack of empowerment from higher levels of government is a stumbling block for the group, whereas those in state, provincial or federal government only somewhat feel this is a problem. This is rather unfortunate, because as an interviewee noted, if those in higher levels of government do not feel like empowering the group, progress cannot be made:

"There isn't an agreed upon protocol to implement a particular environmental goal. Okay? It's, you have to do, [pause] the State Department handles that. And so it's Ottawa, and it's Washington DC, and if those guys don't think it's important then it's not going to get done. (US.01)"

The situation is similar on the Canadian side of the border, and a Canadian respondent echoed these remarks.

"But, there's also...so that's institutional, and also the province and the federal level, so the senior levels of government have actually been...over the years...been stepping back in terms of responsibility… You know, I think in addition to what I've said, hmmm, I think maybe some kind of a political commitment from agencies would, would really help us to, yeah having a commitment to work together from the political level would be, political and executive,...you know they say stuff but they don't always put money where their mouth is (CA.03)"

By and large, most sub-groups share the same opinions in regard to how substantial they feel each challenge is for the success of the SWA. However, at times, particularly in regard to bureaucratic challenges, those located closest to Boundary Bay have differing opinions of how problematic some of those issues are. It seems that government sector respondents tend to be slightly less concerned about some of these bureaucratic challenges than non-government respondents.

When looking at how limited a lack of authority is for the SWA, local government seems very concerned, while those at higher levels of government are only somewhat perturbed.

Ultimately, this seems to indicate that while a framework for strong social capital may exist, there are multiple bureaucratic challenges that threaten to hinder the long term success of the group. Somehow these must be alleviated if the group is to sustain itself.

Several conclusions can be drawn when looking at the perceptions of challenges on the success of the SWA. First of all, logistical issues, such as agreeing on a time and a place to meet or navigating the border, are not a problem.

There are some bureaucratic challenges, in particular a lack of resources and a lack of leadership, that do appear to severely threaten to constrain the SWA. These challenges are posed

from the outside of the SWA, and therefore not within stakeholders direct power to change or mitigate. While it appears that the SWA has been successful at creating an environment conducive to social capital, and can therefore be considered an example of low-level ad hoc governance, this may not be enough in the face of such bureaucratic challenges.

The stature of the group also seems to be an impediment for the group. Low visibility to the greater public and a lack of authority or recognition from the highest levels of government are problematic for the group. Here, potentially changes and improvements could be made. While the SWA cannot force the federal levels of government to grant them additional recognition or legitimacy, perhaps an effort to boost their visibility within the direct region could help them gain the attention of these levels of government. Furthermore, strong leadership may also keep the momentum of the SWA going, and could agitate for recognition and funding from higher levels of government.

4.4 Future Suggestions

In the final section of the questionnaire, respondents were first asked two questions before getting to the main substance of this section. First, they were asked if they felt continued involvement with the SWA was worth their time and effort. If they answered they did not feel it worthwhile, they would be sent to the end of the survey. Only 5 of 23 respondents still taking the survey indicated they no longer felt a need or reason to remain involved with the SWA. As one respondent noted, even if imperfect, the SWA stands alone as an outlet for environmental collaboration in Cascadia:

> *"That's right. Other than whatever local initiative is going on, and the SWA, there's really been no effort to collaborate, to empower, to get the locals working in a common watershed forum (US.02)"*

Respondents were then asked if (on a scale of 1 – Disagree to 5 – Agree) they felt the SWA was sufficient as it currently is and did not need to make changes. The answer was a resounding no. The mean and median average for the entire survey population to this statement as a whole was 2

(somewhat disagree with suggestion), and there were no significant differences in responses when examining the opinions of any of the sub groups. This indicates that overwhelmingly, while most respondents value and wish to remain involved with the SWA, they do recognize the necessity of changes or improvements if the SWA is to succeed long-term.

Each initial interviewee had suggestions for how the group could improve or change in the future. These suggestions were all very specific, and for purposes of brevity, were consolidated into five more general suggestions. For each, respondents were asked whether they disagreed or agreed with the suggestion on a scale of 1 to 5 (1 - Disagree, 5 - Agree) they are:

Q.39 - A permanent administrator would help the group be more organized and systematic. Such individual(s) would do things such as set agendas, produce meeting proceedings, call and facilitate meetings, track projects, pursue grants and funding, or handle logistical task so as to free up everyone else's time for technical aspects.
Q.40 - The SWA should implement a project that makes some effort to restore water quality or reopen shellfish harvesting.
Q.41 - The SWA should engage in additional government outreach and education.
Q.42 - The SWA should ally itself with other groups or coalitions that have similar missions but do not necessarily work across the border.
Q.43 - The SWA should undertake additional volunteer events.

Before discussing the results from this section of the survey, it is important to note the low number of respondents still taking the survey at this section. Because of the drop-out rate, the data gathered here may be less a reflection of the opinions of all involved SWA stakeholders, but just those whose opinions were strong enough to compel them to finish the entire survey. While the response rate for the survey at the beginning was 27 individuals for a 69 percent response rate (see Table 4.1), some respondents ended the survey prematurely (See Table 4.13). For some sub-groups, the number of respondents was so small that statistical analysis could not be run. The discussion for this portion of the questionnaire should perhaps be taken with a grain of salt, and seen more as window into the perspectives of some stakeholders, but perhaps not the generalized view of all.

Table 4.13. Division of American, Canadians By Sector and Level,
End of Survey

	Gov.	Non-Gov.	Local Gov	Regional/Federal Gov.	Total
Canadians	7	8	3	4	15
Americans	2	1	-	1	3
Total	9	9	3	5	18

As with all other parts of the research, I sought to determine first if some suggestions were viewed with more enthusiasm than others, and second, did sub-groups view these suggestions with equal excitement?

4.4.1 Relative Enthusiasm for Suggestions. The first order was to determine if some suggestions were viewed more enthusiastically in comparison to others. Below, table 4.13 summarizes the average responses of the entire survey population in regard to these suggestions:

Table 4.14. Average Enthusiasm for Suggestions
for Change

	Median	Mode	Mean
Q39 – Administrator	5	5	4.47
Q40 – Implement Project	5	5	4.06
Q41 – More Outreach	5	5	4.65
Q42 – Ally	5	5	4.35
Q43 – More Volunteer	4	4	3.38

(1 – Disagree with Suggestion, 5 – Agree with Suggestion)

Table 4.14A. Summary of Significant Results,
Comparing Agreement of SWA Functions
(Wilcoxon Signed Rank)

Comparison of Future Suggestions	Exact Significance (2 Tailed)
Q39 Administrator – Q43 More Volunteer	**0.033**
Q40 Implement Project - Q43 More Volunteer	0.156
Q41 More Outreach – Q43 More Volunteer	**0.004**
Q42 Ally – Q43 More Volunteer	**0.043**

In three instances there were significant differences among the responses to different suggestions, and in all instances the suggestion of conducting more volunteer activities was involved. Table 4.13A summarizes the three instances in which the amount of enthusiasm among suggestion were significantly different. The amount of enthusiasm for additional volunteer activities was less when compared to engaging an administrator, conducting additional public outreach, or partnering with similar groups. While the idea of conducting more outreach may be somewhat less appealing in comparison to other suggestions, it is not outright rejected and still holds a modicum of appeal.

Of the suggestions that garner the highest enthusiasm, they all call for the SWA to become better organized or to develop a more targeted mandate. Given the results, it appears that stakeholders want an organization that is going to be more efficient, but they are not willing to volunteer more time and energy than they are already giving.

It is worth noting that this research did not at all attempt to determine how feasible it may be to implement any of these suggestions. While engaging an administrator may seem particularly attractive, whether or not this can be accomplished successfully is undetermined.

4.4.2 Differences in Enthusiasm for Suggestions between Sub-groups. The final analysis was to determine if sub-groups had significantly different amounts of enthusiasm for the suggestions.

Table 4.14 details the median enthusiasm of each individual group to the suggestion generated in the initial interviews. The results are as follows:

Table 4.15. Sub-Group's Average (Median) Enthusiasm for Suggestions

	CA	USA		Gov.	Non-Gov.		Local Gov.	Region-al/Federal Gov.
N=	14	3		9	8		3	5
Q39 Administrator	5	4		5	5		4	5
Q40 Implement Project	5	5		4	5		3	5
Q41 More Outreach	5	5		5	5		4	5
Q42 Ally	5	5		4	5		4	5
Q43 More Volunteer	4	5		4	4		4	3

(1 – Disagree with Suggestion, 5 – Agree with Suggestion)

For none of the suggestions did a difference in opinion appear to exist within sub-groups. It is important to note that the sample sizes of Americans and local governments were so small that in some instances there was not sufficient data to run statistical tests. The results seem to indicate that when it comes to the future of the SWA, all sub-groups hold the same opinions.

5.0 CONCLUSIONS

The Shared Waters Alliance provides a unique opportunity to examine if there is a framework conducive to micro-level cooperation across the US-Canadian border. Given the political and social circumstances within Cascadia, cooperative governance is the best option for environmental managers looking to address small-scale but international environmental problems. The SWA, an informal working group with representation from both sides of the border and multiple different sectors, has been an enduring presence hoping to accomplish just this.

The focus of my research has been to determine to what degree the SWA has managed to develop social capital along multiple dimensions, what the main challenges the SWA faces are, and finally, what, if anything, would participants involved with the SWA like to see for the future.

It seemed most sensible to accomplish this by investigating the perceptions of actual stakeholders associated with the SWA. By ascertaining the opinions of stakeholders, I was able to determine which aspects of social capital were considered to be present and to what degree, what challenges were considered to be most troublesome, and what levels of enthusiasm existed for several general suggestions for the future. This also allowed me to compare opinions of different sub-groups (opinions of Americans vs. Canadians, non-government vs. government, and local government vs. regional/federal government) to determine if there were "border" effects.

The findings and discussion in chapter four gives a far more in-depth discussion of each aspect of my research: growth and intensity of interactions, friendly tone and shared understandings; the severity of obstacles and challenges hampering the SWA, and the level of enthusiasm for proposed changes.

The research found that the SWA has been largely successful at building a framework for social capital. However, there were still some instances of tensions or disagreements between critical groups of stakeholders. Interestingly, the boundaries that seem to be more often involved in creating differing perceptions are not those of an international border, but boundaries between sector and level

of government. It must be noted that it is possible that the lack of differences between Americans and Canadians could be the result of a lack of American respondents. Whether or not the lack of differences between Americans and Canadians is genuine or driven by a lack of responses, it can be said definitively that there are some critical differences based on sector and to Boundary Bay.

It also appears that while the infrastructure for social capital may be in place, there are numerous substantial issues impeding the SWA from fully realizing collaborative efforts.

5.1 Growth and Intensity of Involvement, Tone, and Shared Understandings.

Based on the results, it appears that involvement with the SWA has contributed to growth of cross border relationships, as well as the development of shared norms and understandings, all indicators of social capital. While it appears that involvement with the SWA has coincided with increases in both structural and cognitive social capital, it does appear there is still some room to further strengthen both of this dimensions.

Prior to becoming involved with the SWA, sub-groups of stakeholders were quite well networked with environmental stakeholders on their side of the border but minimally, if at all, across the border. The one exception was American stakeholders, who appeared to be very highly connected on both sides. However, given the small sample size of American respondents, it is difficult to interpret if this is true of a typical American environmental manager, or a fluke of the small sample size. After becoming involved with the SWA, a small but significant increase in interaction across the border was reported by all sub-groups (again, with the exception of Americans). However, more interaction continues on the same side of the borders in comparison to across them, thus there is room to increase connectivity across the border.

It was generally accepted that the SWA has a friendly and positive tone, and that there is a strong sense of shared understanding of environmental problems. However, the sense that everyone agrees on successes lags slightly behind, indicating an area in which the SWA as a group could work to close that gap of understanding.

That being said, not all sub-groups were as positive about the presence of shared understandings. Government respondents in particular seemed to have a more muted agreement than their non-government counterparts that there were shared understandings of environmental problems or successes. This could perhaps have to do with the backgrounds of the two groups: most non-government respondents are members of environmental non-profit organizations and therefore more likely to be geared towards advocating for the environment and singularly focused. However, both groups agree that there is *some* level of shared understanding, so these differences are not critical.

Local government also had a different perception than regional and federal government in how much consensus they observed in regards to environmental problems. Local government respondents, who are more closely located to the area of concern and presumably have more invested in the problem, slightly disagree that there is shared consensus about what the environmental problems are.

5.2 Mutual Recognition of Ecological Transborder Region

Beyond shared norms or environmental understandings, it appears that stakeholders do feel a mutual sense of belonging to a cognitively constructed and ecologically based transborder region. However, there is also a fairly strong recognition that political borders that intersect this region can limit or inhibit management practices that would be in the best interest of this region.

Regional and federal government respondents seem to feel more constricted by political borders than do their lower level counterparts. This could perhaps indicate that local stakeholders have more leeway to collaborate or reach across jurisdictions.

5.3 Understandings of SWA Functions

By and large, stakeholders' assumptions about the SWA's main functions before becoming involved with the group turned out to be accurate. The functions that seemed most passive and geared towards building and reinforcing social and professional linkages were most strongly

considered central to the mission of the SWA, closely followed by those with the lesser support were the two broadest and nebulous functions (serving as a political gesture or satisfying previous cross border obligations and conducting public outreach).

While there is consensus to what the central purpose of the SWA is, it should be noted that government and non-government respondents have some differing perceptions. In particular, non-government respondents are more optimistic about the SWA's role in implementing water quality improvement programs or trying to resume shellfish harvests. Again, this is perhaps a reflection of most non-government respondents' background in environmental non-profits, organizations that are typically more advocacy based and specific than government agencies. However, magnitude of these differing perceptions is still rather small. It may be beneficial for SWA to more clearly articulate what their main goals and functions are to close these differing perceptions.

5.4 Severity of Challenges

Of the ten challenges posed by the questionnaire, most are considered substantial problems for the group. Surprisingly, border security practices, more specifically the symptomatic issues of long border wait times and being treated as a risk or as someone suspicious by border agents, are not. While this does not reflect much of the contemporary US-Canada literature, it does echo sentiments brought up in the initial semi-structured interviews. The respondents that discussed border security issues described them as irritating and a nuisance, but not a problem that couldn't be learned and accommodated for.

Of the other challenges, most of which are considered to be substantial issues, not all are within the power of the SWA to change. For instance, a lack of funding and resources, lack of authority to make binding decisions, jurisdictional and policy gaps by boundaries on the same side of the border, are all outside of SWA stakeholders control.

While sub-groups generally agree on the severity of most obstacles, there are a few instances where differing opinions exist; however most of these differing opinions are unimportant. For

instance, Americans don't feel that border wait times are an issue whereas Canadians are neutral or slightly disagree that this issue is problematic. There is one particular disagreement that stands out as critically problematic. Local government respondents very strongly feel that a lack of authority is an issue for the SWA, whereas regional/federal government only marginally feels it is a problem.

This makes sense, if those at higher levels of government felt it was a pressing concern, they would be able to take steps to remedy it. However, they do not feel strongly it is a problem, and without some dialogue between these levels of government, it will likely remain unchanged.

5.5 Enthusiasm for Future

Among those surveyed, most value the SWA, and wish for it to continue. However, there is also recognition that changes would be helpful. All six broad suggestions where met with some level of enthusiasm.

That being said, they were still not viewed with equal levels of enthusiasm, and the least exciting proposition is the one that calls for more time and effort on the part of individuals, that is conducting additional volunteer activities. Suggestions that are met with strong enthusiasm, such as installing an administrator to keep the SWA organized, or partnering with similar groups, could provide more support and organization for the group while not adding additional burdens to individual stakeholders. Likewise, there is much enthusiasm for suggestions such as trying to implement a cross border project.

It thus appears that stakeholders would like the group to become more streamlined, more efficient, and more focused.

5.6 Reflections on Theory and Literature

The research suggests that the SWA is very similar to other cross border institutions noted by much of the literature (Blatter, 2000; Blatter, 2001; Blatter, 2004; Leresche and Saez, 2002; Perkmann, 2007; Scott, 1999). The group formed as a reaction to an ongoing and pragmatic

environmental concern; the SWA is not trying to build or promote a transboundary region. It is composed of stakeholders from a variety of differing sectors; such as government agencies, environmental non-profits, academic institutions, tribal and First Nations institutions, and private consulting firms. While multiple levels of government are involved, it appears to largely be an effort instigated and sustained by those located nearest the area of concern. While the group meets regularly, there is no binding or formalized nature to the group, and participation remains entirely voluntary.

Confirming some of Blatter's findings (2000, 2001) in which the largest differences were often based on sector and not nationality, there is little disagreement between Americans and Canadians. It is possible, however, that this is the result of a lack of American participation in the research.

Despite the nature of the group and the presence of structural and cognitive social capital, many of the challenges identified in previous works were uncovered here as well. Many of the challenges noted by Spenner Norman (2005) were also cited to be the most acute obstacles for the SWA. Unfortunately few of these obstacles are within the ability of stakeholders to change or mitigate. Lack of authority, lack of resources, and lack of leadership all stand in the SWAs way of progressing beyond just information sharing and networking to actually implementing programs that would attempt to improve environmental conditions.

Ultimately, the SWA needs some form of stability and empowerment. Blatter's (2004) consactions, perhaps his most successful form of CBR institutions, call for not only the engagement of local level actors, but also top-down support, empowerment, and mediation between differing sectors or opinions. Thus, if the SWA can attain additional legitimacy from the highest level of government, perhaps they can expect more stability and support. Boosting their visibility within the immediate area and gaining more assertive leadership that attempts to agitate for higher recognition may be a way to accomplish this.

5.7 Short-comings of Research

      While the survey had a strong response rate, there are several issues with the small sample size that could potentially be skewing the findings of my research. Aside from all the traditional pit-falls that can come with such a small sample size, there were also a very small number of American respondents. Only four out of the twenty-seven survey respondents were Americans. This isn't necessarily because American respondents were less interested in responding to my survey, the fact was the pool of Americans given to me in the initial contact list was much smaller than Canadians. This throws into question whether or not the SWA is "truly" a cross border group, as far more Canadians than Americans are involved currently.

      Another potential issue with the sample population is that it involved individuals who were already participating with the SWA, and therefore likely had a more positive opinion of its effectiveness. While I was given a contact list that included some individuals who no longer participated with the SWA, there were likely a large number of environmental managers who could foreseeably be involved with the SWA but chose not to, and therefore were left off my contact list. Probing the perceptions of environmental managers who have a stake in Boundary Bay but have chosen not to become involved with the SWA may yield a different understanding of how successful the SWA is viewed.

      Finally, despite going through multiple drafts and conducting two rounds of pilot testing twice, there were invariably questions on the survey that were determined later in the analysis process to have been written somewhat poorly.

      For instance, Question 12 (which asked respondents if they agreed a central purpose of the group was to develop good will or serve as a political gesture) was written somewhat poorly, and the question was perhaps not easy to understand. It is possible that respondents did not fully realize what the question was trying to ask. The actual text of this question was as follows:

"Before I first became involved with SWA I was under the assumption that the group met broader obligations of existing US or Canadian statutes, or agreements that call for integrated environmental collaboration across the border"

In retrospect, this statement is asking respondents to evaluate two different things: fulfilling existing legislation on contained to one side of the border, or fulfilling cross border agreements that are not official but call for cooperation across the border.

5.8 Potential for Ongoing Research

In addition to making a more concerted effort to reach out to more American environmental stakeholders, or environmental stakeholders who have deliberately chosen to eschew the SWA, several other areas for additional research emerged.

It appears that there is a rather substantial – albeit not overwhelming – divide between the perceptions of those in the government and those who are not. While I am able speculate as to why this might be, additional research could determine why non-government and government perceptions seem to differ.

An additional line of investigation would be to examine the feasibility of some of the suggestions for the future. The intent of my research was to capture the general direction of changes the SWA should make in the future, but these suggestions are still rather general, and how feasible they would be was not factored into my research. The obvious next step would be to take these broad suggestions, develop specific prescriptions and determine how feasible implementing some of these improvements would be.

5.9 Final Remarks

The self-described purpose of the Shared Waters Alliance "is to promote environmentally sustainable land use practices, encourage environmental stewardship and work towards improving overall water quality of the Boundary Bay Basin" (Shared Waters Alliance, 2006). While the group

has thus far been limited in their ability to implement programs to improve environmental conditions, for over a decade the SWA has maintained ties across the border and given local environmental managers and invested stakeholders a forum to engage over shared concerns. There appears to be a disparity between the number of American participants in comparison to Canadian; none-the-less American interests are represented in some capacity, and the SWA is a genuine articulation of bottom-up cross border cooperation.

The goal of my research was to explore if social capital had been constructed by the Shared Waters Alliance. Ultimately, it does appear that along both structural and cognitive dimensions, a wealth of social capital is present. However, whether this social capital is sufficient to sustain the group is unclear. Institutional and bureaucratic hurdles pose the most substantial problems for the group, and social capital alone may not be enough to overcome them.

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Semi-Structured Interview Guide

My name is Riley Jones, and I am a student from Western Washington University in the US. I am doing research on the how the Shared Waters Alliance maintains human relationships and maintains channels for information sharing ties across the borders, and the challenges that they face in doing so. I would like to discuss your perceptions of to what extent SWA facilitates communication across the border, possible obstacles that impede this communication (and what those obstacles are), and your views your views on how SWA should develop in the future.

What is your country of residence?
Is this the same as your citizenship?

For how long have you been involved with Shared Waters Alliance?

How did you come to be involved with SWA? (For instance, was this a part of your job, or did you voluntarily join?)

What proportion of SWA functions do you attend or participate in? (For instance, do you attend every meeting, occasionally, or just when you have a specific reason to go?) Do you participate on a regular basis, or have you only participated once or twice?

Do you participate in other cross border groups? How much overlap is there between other groups you participate with, or are they pretty exclusive?

To you, what were you hoping to gain from becoming involved with SWA? Has SWA met those expectations (for example, is it to share information, work towards definable goals, ect)

In your opinion, what aspects of SWA are effective? What are not?

How would you describe the purpose of SWA?

Do you consider the Boundary Bay to be one fluid ecological system, or do you think Drayton Harbor and Semiahmoo Bay are still somewhat autonomous systems?
Do you think other SWA members consider the Boundary Bay to be one fluid ecological system, or do you think they view Drayton Harbor and Semiahmoo Bay as somewhat autonomous systems?

Do you think that most SWA members have similar perspectives about how to investigate and address water quality issues? If the answer is no, please briefly explain.

Prior to joining SWA, did you ever reach out to other members on the same side of the border to interact, coordinate, or work cooperatively on issues directly related to Boundary Bay or the work of SWA?
Prior to joining SWA, did you ever reach out to other members on the other side of the border?
After joining SWA, do you now reach out to other members on the same side of the border to interact and coordinate with them on issues not directly related to Boundary Bay or the work of SWA?
After joining SWA, do you now reach out to other members on the other side of the border?
For contact with members on the same side of the border, has the frequency you have done so increased since joining the SWA? (For example, somewhat more frequently, much more frequently, ect)

For contact with members on the other side of the border, has the frequency you have done so increased since joining the SWA? (For example, somewhat more frequently, much more frequently, ect)

Are there currently challenges that affect SWA ability to function or meet its goals?
Which of these challenges has the greatest impact?

Of these challenges, are they within the control of SWA members to change, or are they out of members control?

Have any of these challenges increased in magnitude since you first become involved with SWA? How so?

For you personally, do you currently feel it is worth your while to continue with SWA as it is structured now? Why not?
If yes, do you think there could still come a point in the future when the challenges become large enough obstacles that it is no longer worth your effort to continue with SWA?
Conversely, do you think there will come a point in the future when the SWA meets all of its goals and is therefore no longer necessary?
What might that point look like?

In your opinion, do you think SWA should exist over the long-term, or do you think that once the initial goals of the group are met (or are determined to be impossible to ever meet), there will be no need for it?

If you feel SWA should exist over the long term, what new purpose (if any) should it serve? Should the structure or how SWA functions change at all?

Category	Name of Code	Description/Meaning
Initiation to Group		
	Institutional	Individual was acquainted with group not through professional/individual contact, but was contacted through agency/request of employer.
	Personal	Individual became acquainted with group through a personal contact or individual
Social Capital		
	Networks	Evidence of the SWA contributing to the building or strengthening of social network and social ties
	Familiarity/Trust	Evidence of the presence and growth of trust and familiarity
	Shared Goals/Concerns	Evidence that cross border counterparts share same goals and concerns, and the same norms and understanding to categorize those as important, and affinity for working together in order to actualize them
	Building Social Capital	Evidence of SWA contributing to the growth of one or more dimensions of social capital
	Involvement in Multiple Cross Border Regions	Evidence that interviewee is involved in cross border interactions or has cross border relationships that do not have anything to do with SWA or Boundary Bay
	One Region	Evidence that the environment is seen as one, not two related but distinct regions
	Two Region	Evidence that the environment is seen or considered as Canadian or American entities
Design of Group		
	Top-Down	It appears that higher levels of government are setting the agenda or otherwise controlling or setting the tone for the activities of the SWA
	Bottom-Up	It appears that local levels of government are setting the agenda or otherwise setting the tone for the activities of the SWA
	Mixed	There seems to be an equal amount of influence from both the local and higher levels of government in setting the agenda or setting the tone for the activities of the SWA.
Focus of Group		
	Single Purpose, Ad Hocratic	Evidence of involvement in organizations that are focused on singular or targeted, functional concerns.
	Broad Purpose	Group is viewed as having a broad, ongoing platform and purpose

Challenges	Need for Outcome	Dissatisfaction with ability of group to work towards goal. Likely symptomatic of other challenges.
	Non Instrumental People	- If key players, those able to influence or change policy are not invested or involved
	Institutional Cross Border	Challenges with providing mechanism to develop and implement joint legislation or policy across the border
	Lack of Autonomy	Challenges due to the lack of authority/jurisdiction of local authorities to engage in cross border coordination, or the direct prohibition by higher levels of government
	Intra-jurisdictional	Lack of cooperation between jurisdictions on the SAME side of the border
	Issues in Crossing Border/Border Security	Practices of border security, and there resulting effects, seem to inhibit the success of the SWA.
	Lack of resources/financial support/Time	There is not enough resources, financial or staffing to empower the group - either from within the participating organizations or agencies being represented, or within the group as a whole.
	Lack of relevance to Respondent	The activities or mission of the SWA are not seen to be relevant enough to individual to justify spending time and energy participating in group.
	None	No challenges noted
	Unable to Speak To	Interviewee does not feel familiar enough with SWA to speak to the challenges it faces
	Lack of Visibility	The group is not well known; many stakeholders who would benefit being involved with the SWA are not aware of its existence
	Logistics in convening meetings	It is difficult to agree on a time and a place to meet
	Lack of individuals/invested leaders	Respondent feels leadership is not strong enough
	Lack of formality/regularity	The group is not structured, is too loose to be productive
	Lack of prioritization	The water quality or state of shellfish harvesting is not high enough priority to justify spending time and energy participating in group.
Helps to Group		
	Financial Assistance	Evidence group has been given some form of financial assistance
	Leadership Individuals	Evidence of strong and engaged leadership

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Category	Code	Description
	Increase in upper levels interest/support	Evidence of upper levels of government interested in supporting SWA
	Ease	Participating in SWA is easy, not a hassle.
Purpose of Group		
	Share Information	Respondent identifies that the purpose of group was to share information.
	Facilitate action	Respondent feels group should be undertaking projects with tangible goals, like reopening shellfish harvesting or implementing programs to mitigate pollution.
	Individual Gain	Respondent joins as they feel the group will bring them, or the organization they represent, benefits
	Capture Funding/Resources	Respondent feels that the SWA can serve as an attractive target to funnel funding and resources
	Promote wider public awareness	Respondent feels that group's purpose is to conduct public education and raise awareness.
Successes		
	Unable to speak to	Interviewee does not feel they are able to answer this question
	None/Ineffective	Respondent does not feel SWA has any successes
	Forum for Communication and Sharing	Respondent feels that SWA has been an effective forum for information sharing and communication
	Efforts of Stewardship/Volunteer Groups	Respondent is impressed with the volunteer efforts of member organizations
	Changes to practices	Respondent notes that SWA has influenced participating agencies and organizations in somehow changing their practices or behaviors
	Brings together multiple opinions	Respondent notes that there is strong diversity in SWA membership
	Increased Involvement	Respondent notes that following their participation in SWA, they now interact more frequently with other stakeholders than before on issues not related directly to SWA or Boundary Bay.
Future	Desire to continue/stay involved	Respondent is motivated to continue to stay involved with SWA

	Not interested/other opportunities to individual	Respondent does not feel desire to continue to stay involved with SWA
	Suggestions to improve	Individual suggestions to improve the group where identified

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Shared Waters Alliance Questionnaire

* 1. I UNDERSTAND THAT:

Thank you for taking the time to complete this survey. The goals of this survey are to explore the particular challenges the Shared Waters Alliance faces in cooperating across the U.S.-Canada border in regards to water quality issues. It is in fulfillment of a Master's thesis at Western Washington University. Below is the informed consent of the purpose and anticipated risks of this survey.

(1) Purpose is to study organization and information sharing: This study is based on a one time interview and follow-up questionnaire. Information will not be shared outside of this study and its reported results.
(2) Voluntary: My participation is voluntary, I may choose not to answer certain questions or withdraw from participation at any time.
(3) All information is confidential: Electronic results will be kept anonymous on a computer hard drive in a password protected folder.
(4) Anonymity: At the completion of the study no names or identifying information will appear anywhere in a report and will be not be shared with the public. Final results will be collated only by general categories such as nationality or length of involvement with SWA groups to find if there is variation within those categories.
(5) Time commitment: The survey will take approximately fifteen minutes.
(7) Risk: There are no anticipated risks or discomfort associated with participation.
(8) Expected benefits: This aims to better understand the challenges that cross border working groups face in addressing joint environmental problems, and potentially determine strategies for succeeding with future efforts.
(9) My participation in this study in no way waives my legal rights of protection.
(10) I certify that I am 18 years of age or older
(11) This experiment is conducted by Riley Jones Department of Environmental Studies. Any questions that you have about the experiment or your participation may be directed to her at 360-820-3786.
(12) If you would like a copy of this form it can be provided to you by emailed by contacting jonesr37@students.wwu.edu If you have concerns or questions about your rights as a participant, you can contact Janai Symons, WWU Human Protections Administrator (HPA) at (360) 650-3220 or 3082. In the event that you suffer any research related injuries or adverse effects as a result of participating in this study, please contact the HPA.

☐ I acknowledge that I have read this information and agree to participate in this research, with the knowledge that I am free to withdraw my participation at any time without penalty.

* 2. Access Code (Please Copy and Paste from Invitation Email)

1. How did you first become aware of the Shared Waters Alliance?
Please briefly write how you first became aware of or involved with the group

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2. From which jurisdiction do you work?
Please select the most appropriate choice for you

☐ Canada

☐ USA

☐ Both

☐ Canadian First Nations

☐ American Tribal

☐ Other (please specify)

3. What sector do you work in?
Please select most appropriate choice for you

☐ Public

☐ Private

☐ Non-profit

☐ Academic

Other (please specify)

4. What level of government do you work at?

☐ Local/Municipal

☐ County/Sub-provincial

☐ State/Provincial

☐ Federal

5. How long have you been associated with SWA, either in a direct or observational role?
Please select the most appropriate choice for you

☐ At this point, never

☐ Since the last meeting

☐ Less than a year

☐ One to five years

☐ Five to ten years

☐ Ten or more years

6. On a scale of 1 to 5, what proportion of SWA functions do you attend since becoming associated with the group (meetings, research sharing, projects)?
Please select your answer from the drop down menu with: 1 – One to 5 – Every, or Have Not Attended or Participated with SWA directly

Perceptions of Group's Purpose

This next set of questions focuses on what your preconceived notions of the purpose of the SWA were before joining, and whether those assumptions match the reality of the group. Please select from a scale of 1 to 5 the level of your agreement for the following statements. (1 – Disagree, 2 – Somewhat Disagree, 3 – Neither Agree nor Disagree, 4 – Somewhat Agree, 5 – Agree, or Unable to Answer)

Information Sharing

9A. Before I first became involved with SWA I was under the assumption that the group provided a forum for sharing information and data about water quality

1 - Disagree

9B After becoming involved with SWA I found this assumption was true

1 - Disagree

9C. If you noted a discrepancy between your initial assumption and the reality of the group, you would say this is a problem for the group's success

1 - Disagree

Implementation of Programs to Mitigate Pollution Degrading Water Quality

10A. Before I first became involved with SWA I was under the assumption that the group implemented programs that worked towards improving water quality

1 - Disagree

10B After becoming involved with the SWA I found this assumption was true

1 - Disagree

10C. If you noted a discrepancy between your initial assumption and the reality of the group, you would say this is a problem for the group's success

1 - Disagree

Implementation of Programs to Resume Shellfish Harvesting

11A. Before I first became involved with SWA I was under the assumption that the group undertook projects that would work towards reopening shellfish harvesting

1 - Disagree

11B. After becoming involved with the SWA I found this assumption was true

| 1 - Disagree |

11C. If you noted a discrepancy between your initial assumption and the reality of the group, you would say this is a problem for the group's success

| 1 - Disagree |

Meet Broader Political Obligations

12A. Before I first became involved with SWA I was under the assumption that the group met broader obligations of existing US or Canadian statutes, or agreements that call for integrated environmental collaboration across the border

| 1 - Disagree |

12B. After becoming involved with SWA I found this assumption was true

| 1 - Disagree |

12C. If you noted a discrepancy between your initial assumption and the reality of the group, you would say this is a problem for the group's success

| 1 - Disagree |

Facilitate Networking

13A. Before I first became involved with SWA I was under the assumption that the group provided opportunities to network with other environmental stakeholders

| 1 - Disagree |

13B. After becoming involved with SWA I found this assumption was true

| 1 - Disagree |

13C. If you noted a discrepancy between your initial assumption and the reality of the group, you would say this is a problem for the group's success

| 1 - Disagree |

Conduct Public Outreach and Education

14A. Before I first became involved with SWA I was under the assumption that the group educated the public about the condition of water quality in Boundary Bay or the upstream watershed

1 - Disagree

14B. After becoming involved with SWA I found this assumption was true

1 - Disagree

14C. If you noted a discrepancy between your initial assumption and the reality of the group, you would say this is a problem for the group's success

1 - Disagree

Additional Purposes of Groups Not Yet Listed

15. Did you have a preconceived notion about what the SWA's purpose was before becoming associated with the group that has not been listed above?
Already listed were: to share information, mitigate pollutants, resume shellfish harvesting, meet broader political obligations, facilitate networking, and conduct public outreach and education

15A. If you entered a preconceived purpose above, did you find that this assumption was true upon becoming involved with the SWA?

1 - Disagree

This next section refers to SWA ability to connect you with other stakeholders, both on the same side and the opposite side of the border as you

16. Prior to becoming involved with the SWA in any capacity, I was in contact with other environmental managers or stakeholders from organizations or agencies other than my own, for any reason, who were from:
(Please select the most appropriate answer for you on a scale of 1 to 5, with 1 being Never and 5 being Frequently)

     A.   The Same Side of the Border
     B.   The Other Side of the Border

17. After becoming involved with the SWA in any capacity, I was in contact with other environmental managers or stakeholders from organizations or agencies other than my own, for any reason, who were from:
(Please select the most appropriate answer for you on a scale of 1 to 5, with 1 being Never and 5 being Frequently)

     A.   The Same Side of the Border
     B.   The Other Side of the Border
     C.

18. In general, the atmosphere at meetings is positive and friendly
Please select your level of agreement with the above statement on a scale of 1 to 5 (1 -Disagree, 5 - Agree, or Unable to Answer)

1 - Disagree

19. Do you ever reach out to individuals you have meet through SWA on issues not related to Boundary Bay or the work of SWA?

Yes

No

19A. Please indicate at what frequency you have done so
Please select the most appropriate answer on a scale of 1 to 5 (1 - Once, 5 - Frequently)

This section asks about your opinion agreement on environmental values within the group

20. How strongly do you agree with this statement "When I think about the Boundary Bay Basin, I focus more on it as a whole ecosystem, irrespective of the political delineations drawn by the border."

> 1 - Disagree

21. In your day to day work you are constrained to making decisions or considering just the portion of the ecosystem that is on your side of the border

> 1 - Disagree

22. On average, people involved with SWA focus on the ecosystem as a whole, irrespective of the political delineations drawn by the border

> 1 - Disagree

23. On average, most people involved with SWA agree on the nature and extent of the water quality issues

> 1 - Disagree

24. On average, most people associated with

> 1 - Disagree

Some challenges for the group have been identified in previous interviews. This section will ask you how substantial you think these challenges are in regards to the SWA being an effective organization

For the following statements, please rate from 1 to 5 whether or not you agree they are substantial road blocks for the success of the group. From the dropdown menu select your answer, with 1 – Substantial Issue, 2 – Somewhat Substantial Issue, 3 –Neither Substantial or Unsubstantial Issue 4 - Somewhat Unsubstantial Issue, 5 - Unsubstantial Issue, or Unable to Answer

25. The ability to agree on a time and place to meet

1 - Substantial Issue

26. The slowness in implementing a program to mitigate contaminants affecting water quality

1 - Substantial Issue

27. The lack of visibility of the SWA to a wide audience of environmental managers

1 - Substantial Issue

28. The lack of individuals or agencies willing to take on a leadership role

1 - Substantial Issue

29. The lack of resources (financial, personnel, or technical)

1 - Substantial Issue

30. The lack of a mechanism that would allow for SWA to implement regulatory or enforcement activities across the border

1 - Substantial Issue

31. Long waits at the border

1 - Substantial Issue

32. The treatment by border agents when crossing the border

1 - Substantial Issue

33. The reality of inconsistencies or gaps between jurisdictions on the same side of the border

1 - Substantial Issue

34. The fact that environmental policies of Canada and the US have differing objectives

1 - Substantial Issue

35. Is there a substantial challenge for the group has not been listed above?
Challenges already listed were: time and place to meet, lack of mitigation programs, low visibility of the group, lack of leadership, lack of resources, lack of mechanisms, border wait times, treatment at borders, gaps between jurisdictions on the same side of the border, and differing environmental agendas

36. At what point would any of aforementioned challenges become substantial enough that the participating with SWA would no longer be worth your effort? Conversely, if you have already reached that point, what did that point look like?
Please briefly describe below

Potential changes for the future of SWA.

In previous interviews, multiple suggestions for the group's future where brought up. Please rank if your level of agreement with the following suggestions for the future of SWA on a scale of 1 to 5 (1 – Disagree with Suggestion, 2 – Somewhat Disagree with Suggestion, 3 – Neither Agree or Disagree with Suggestion, 4 – Somewhat Agree with Suggestion, 5 – Agree with Suggestion, or Unable to Comment on Suggestion):

37. I do not intend on participating with SWA for the long term, and have no suggestions

True

False

38. SWA does not need to make any changes

1 - Disagree with Suggestion

39. A permanent administrator would help the group be more organized and systematic. Such individual(s) would do things such set agendas, produce meeting proceedings, call and facilitate meetings, track projects, pursue grants and funding, or handle logistical task so as to free up everyone elses' time

1 - Disagree with Suggestion

40. The SWA should implement a project that makes some effort to restore water quality or reopen shellfish harvesting

1 - Disagree with Suggestion

41. The SWA should engage in additional public outreach and education

1 - Disagree with Suggestion

42. The SWA should ally itself with other groups or coalitions that have similar missions but do not necessarily work across the border

1 - Disagree with Suggestion

43. The SWA should undertake additional volunteer events

1 - Disagree with Suggestion

44. Do you have any suggestions that have not been listed above?
Suggestions listed include: having a permanent administrator, undertaking a project to improve water quality, engaging in additional public outreach, allying with other groups, and additional volunteer events

45. Thank you for taking time to complete this questionnaire. Your participation is greatly appreciated. If you have any further comments, please feel free to leave them here.

Survey of Environmental Stakeholders Involved with Shared Waters Alliance

<<DATE>>

Dear <<NAME>>

I am writing to ask for your participation in a survey that I am conducting as part of a research that is part of a master's thesis at Western Washington University. The survey asks environmental stakeholders such as yourself to reflect on your perceptions of the Shared Waters Alliance, more generally, the atmosphere in which environmental management is conducted across the border. You received this email based on your prior participation with SWA, either directly or through your association with another individual engaged with the group.

The goal of my research is to explore how the participants within SWA perceive how the group functions as a cross border environmental working group, what particular challenges they are faced with, and finally what form or functions the group should take on in the future.

I interviewed several people leading up to this survey, if you were one of them please complete this survey as well.

This is a short survey and should take you no more than ten minutes to complete. Please click on the link below or go to the survey website (or copy and paste the survey link into your Internet browser) and then enter the personal access code to begin the survey.

Survey Link: https://www.surveymonkey.com/s/JDKJ3CX

Personal Access Code: <<CODE>>

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. The access code is used to remove you from the contact list once you have completed the survey so you will receive no more emails asking you to complete the survey. No personally identifiable information will be associated with your responses in any reports of this data. Should you have any further questions or comments, please feel free to contact me at jonesr37@students.wwu.edu or 360-820-3786.

I appreciate your time and consideration in completing the survey.

Many thanks,

Riley Jones

Graduate Student

Western Washington University

Dear <<NAME>>,

Last week you were sent an email asking you to participate in a survey that focuses on your perceptions of the Shared Waters Alliance. It is a short survey, and should take no more than 15 minutes. You were selected due to any previous involvement you have had with the group, or because of involvement with another individual who is associated with the SWA. If you have not yet taken the survey, please take the survey by entering the following URL into your web browser:

https://www.surveymonkey.com/s/JDKJ3CX

Your Personal Access Code: <<CODE>>

Thank you,

Riley Jones, Western Washington University

360 820-3786 jonesr37@students.wwu.edu

<<NAME>>

<<ADRESS ONE>>

<<ADDRESS TWO>>

<<CITY>>, <<AB>> <<ZIP>>

<<COUNTRY>>

«Email»

Dear «Name»

About two weeks ago, you were sent a link to a survey that seeks your perceptions on the Shared Waters Alliance. As of today, I have not received your completed questionnaire. I realize you may not have had time to complete it. However, I would genuinely appreciate hearing from you.

The study seeks to gauge how the participants both within and observing the Shared Waters Alliance perceive how the group functions across the border, what particular challenges they are faced with, and finally what form or functions the group should take in the future. You have been contacted based on your prior participation with SWA, either directly or through another individual engaged with the group.. In order for the study to most accurately represent the general perception of the group, it is important that each person return their questionnaire.

To take the survey, please either click on the link below, or copy and paste it in your web browser, and enter your personal access code.

Survey Link: https://www.surveymonkey.com/s/JDKJ3CX

Personal Access Code: «Access_Code»

I would be happy to answer any questions you have about the study. Please me email me back at this address, or call me at 360 820-3786.

Sincerely,

Riley Jones

<<DATE>>

<<DEAR NAME>>

You were recently sent an email asking you to respond to a brief survey about your experience and perceptions of the Shared Waters Alliance. Your response to this survey is important and will help gain a better understanding of whether the SWA has built a framework for governance across the border, what challenges they face, and what the future for the group should be.

The survey is short and should take you less than fifteen minutes to complete. If you have already completed the survey, I appreciate your participation. If you have not yet responded to the survey, I encourage you to take a few minutes to do so.

Please click on the link below to go to the survey website (or copy and paste the survey link into your Internet browser) and then enter the personal access code to begin the survey.

Survey link: <<link>>

Personal Access Code: <<CODE>>

Your response is important. Getting direct feedback from environmental stakeholders and those who have interacted with the SWA in some capacity is critical about better understanding environmental management across the border. Thank you for your help in completing the survey.

Sincerely,

Riley Jones

Graduate Student

Western Washington University